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RESEARCH MEMORANDUM

WING LOADS AND LOAD DISTRIBUTIONS THROUGHOUT THE LIFT RANGE OF THE DOUGLAS X-3 RESEARCH AIRPLANE AT TRANSONIC SPEEDS

By Earl R. Keener and Gareth H. Jordan

High-Speed Flight Station
Edwards, Calif.

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NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS

WASHINGTON

November 9, 1956

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NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH MEMORANDUM

WING LOADS AND LOAD DISTRIBUTIONS THROUGHOUT THE LIFT RANGE OF THE DOUGLAS X-3 RESEARCH AIRPLANE AT TRANSONIC SPEEDS

By Earl R. Keener and Gareth H. Jordan

SUMMARY

Wing loads and load distributions were obtained by differential-pressure measurements between the upper and lower surfaces of the left wing of the Douglas X-3 research airplane to determine the effects of angle of attack and Mach number on the wing characteristics at transonic Mach numbers. The wing has an aspect ratio of 3.09 and a modified 4.5-percent-thick hexagonal section. Data cover the range from near-zero lift to maximum lift and from a Mach number of 0.71 to a Mach number of 1.15.

The chordwise load distributions and the wing-section aerodynamic characteristics were similar at each wing station. A large load developed at the leading edge resulting from the relatively sharp leading edge. At Mach numbers below 0.9 separation of the flow from the leading edge resulted in a loss in leading-edge load and a low maximum lift. The maximum normal-force coefficient of the wing panel was 0.66 at a Mach number of 0.71 compared to 1.2 at supersonic Mach numbers. Spanwise load distributions were essentially elliptical throughout the lift and Mach number range tested. Values of normal-force-curve slope ranged from 0.076 per degree at a Mach number of 0.71 to 0.116 per degree at a Mach number of 1.0. Variation of pitching moment with lift was unstable at the lower Mach numbers, becoming increasingly stable above a Mach number of about 0.9. The chordwise location of the center of pressure varied with angle of attack between 15- and 30-percent chord at subsonic Mach numbers and between 31- and 37-percent chord at supersonic Mach numbers. The spanwise location of the center of pressure was relatively constant with lift and Mach number at about 42 percent of the panel span. The flight results are in good agreement with wind-tunnel results at Mach numbers below 0.90 and in fair agreement at Mach numbers of 0.90 and 0.92.

Deflecting the leading-edge flap about 7° over a Mach number range of 0.71 to 0.80 increased the maximum normal-force coefficient about 0.06 and moved the center of pressure rearward at the lower angles of attack and slightly forward at the higher angles of attack. No change occurred in the spanwise location of the center of pressure.

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INTRODUCTION

Flight tests of the Douglas X-3 research airplane have been conducted at the NACA High-Speed Flight Station at Edwards, Calif., to explore the subsonic and low supersonic Mach number range with a thin-winged airplane designed for supersonic speeds. As a part of the flight test program wing loads and load distributions were obtained to contribute some general aerodynamic data on this supersonic design. The data were obtained by differential-pressure measurements between the upper and lower surfaces of the left wing.

This paper presents an analysis of the effects of angle of attack and Mach number on the wing loads and the chordwise and spanwise load distributions over a Mach number range of 0.71 to 1.15. The data cover the normal range of angle of attack and Mach number of the airplane. Also included are the preliminary results of the effect of deflecting the leading-edge flap about 7° at $M \approx 0.71$, 0.76, and 0.80 throughout the lift range.

Reference 1 presents some preliminary pressure distributions over the upper and lower surfaces at a midsemispan station of the wing through an angle-of-attack range at Mach numbers of about 0.61, 0.78, 0.94, and 1.10.

SYMBOLS

A	aspect ratio, b^2/S
$b/2$	wing semispan
$b'/2$	wing-panel span, spanwise distance from first row of orifices $(0.301b/2)$ to wing tip, ft
C_N'	wing-panel normal-force coefficient, $\int_0^1 c_n \frac{c}{c'_{av}} d\frac{2y'}{b'}$
C_{N_A}	airplane normal-force coefficient, Wn/qS
$\frac{C_N'(S'/S)}{C_{N_A}}$	ratio of normal force of wing to total airplane normal force

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$C_b{}'$	wing-panel bending-moment coefficient about 0 b'/2, $\int_0^1 c_n \frac{c}{c'_{av}} \frac{2y'}{b'} d \frac{2y'}{b'}$
$C_m{}'$	wing-panel pitching-moment coefficient about $0.25\bar{c}$, $\frac{c'_{av}}{\bar{c}'} \int_0^1 c_m{}' \left(\frac{c}{c'_{av}}\right)^2 d \frac{2y'}{b'}$
C_p	differential pressure coefficient, $\frac{p_l - p_u}{q}$
c	local wing chord parallel to plane of symmetry, ft
$\bar{c}'$	mean aerodynamic chord of wing panel, $2/S' \int_0^{b'/2} c^2 dy'$, ft
c'_{av}	average chord of wing panel, ft
c_m	section pitching-moment coefficient about 0.25c, $\int_0^1 C_p \left(0.25 - \frac{x}{c}\right) d \frac{x}{c}$
$c_m{}'$	section pitching-moment coefficient about line perpendicular to longitudinal axis of airplane, passing through $0.25\bar{c}'$, $c_m + 0.50(1 - \bar{c}'/c)c_n$
$c_m{}'\left(\frac{c}{c'_{av}}\right)^2$	section pitching-moment parameter
c_n	section normal-force coefficient, $\int_0^1 C_p \, d \frac{x}{c}$
$c_n\left(\frac{c}{c'_{av}}\right)$	section normal-load parameter
g	acceleration due to gravity, ft/sec^2
k	ratio of experimental lift-curve slope to theoretical value of $2\pi/\beta$, both taken at the same Mach number

M	free-stream Mach number
n	normal-load factor, g units
p_l	local static pressure on lower wing surface, lb/sq ft
p_u	local static pressure on upper wing surface, lb/sq ft
q	free-stream dynamic pressure, lb/sq ft
S	total wing area, including area projected through fuselage, sq ft
$S'/2$	area of wing panel (outboard of 0 b'/2), sq ft
W	airplane weight, lb
x	chordwise distance rearward of leading edge of local chord, ft
x_{cp}	chordwise location of center of pressure of wing section, $(0.25 - c_m/c_n)100$, percent c
x'_{cp}	chordwise location of center of pressure of wing panel from leading edge of $\bar{c}'$, $(0.25 - C_m'/C_N')100$, percent $\bar{c}'$
y'	spanwise distance outboard of 0b'/2, ft
y'_{cp}	spanwise location of center of pressure of wing panel, $(C_b'/C_N')100$, percent b'/2
α	measured airplane angle of attack, deg
β	compressibility parameter, $\sqrt{1 - M^2}$
δ_{a_L}	left aileron position, deg
δ_f	leading-edge flap position, deg

DESCRIPTION OF AIRPLANE AND WING PANEL

Photographs of the airplane are shown in figure 1, and a three-view drawing presenting the overall dimensions is shown in figure 2. The physical characteristics of the airplane and wing panel are given in table I.

The wing has an aspect ratio of 3.09, a taper ratio of 0.39, and zero incidence, dihedral, and twist. A line through 75-percent local chords is perpendicular to the plane of symmetry. The wing section is a 4.5-percent-thick modified hexagonal airfoil with vertices at 30- and 70-percent chord. Modifications to the airfoil consisted of a 188-inch radius at 30- and 70-percent chord and a small radius at the leading and trailing edges as shown in table II.

A drawing of the wing is shown in figure 3. The wing panel consists of the portion of the left wing outboard of the first streamwise row of orifices (0.301b/2). All the wing-panel coefficients are based on the geometric properties of the wing panel included in table I. The leading-edge flap has a constant streamwise chord of 12.5 inches and extends from the wing root to the wing tip. Geometric properties of the leading-edge flap are also included in table I. Two control-actuator fairings are located on the bottom surface of each wing as shown in figures 2 and 3.

INSTRUMENTATION AND ACCURACY

Standard NACA film-recording instruments were used to record the wing differential pressures, indicated free-stream static and dynamic pressures, normal acceleration, angle of attack, angle of sideslip, aileron position, leading-edge flap position, and rolling and pitching angular velocities and accelerations. All instruments were correlated by a common timer.

A pitot-static tube with an NACA type A-6 total-pressure head (ref. 2) was mounted on a nose boom and the static-pressure error was determined in flight. The total estimated error in Mach number is within ±0.01. Angle of attack and angle of sideslip were measured by vanes mounted on the nose boom. The angle of attack indicated by the recorder is presented in this paper and was measured with respect to the fuselage reference plane.

Flush-type static-pressure orifices installed in the left wing were arranged in five streamwise rows. The ordinates of the airfoil section at each row of orifices are given in table II. The chordwise locations of the orifices are given in table III. Figure 3 shows the spanwise locations of the five rows of orifices.

The orifices were connected by tubing through the wing to the manometers in the instrument compartment. Lag in the pressure-recording system was determined by the method for photographic instruments presented in reference 3 and was checked in flight by comparing abrupt and gradual maneuvers. The lag was found to be negligible for the data presented in this paper; therefore, no lag corrections were applied to the data.

Accuracies of other pertinent recorded quantities are:

Differential-pressure measurements, $p_l - p_u$, lb/sq ft	±7
Normal load factor	±0.05
δ_{a_L}, deg	±0.2

These accuracies resulted in the following estimated probable accuracy in some of the coefficients for the Mach number range of 0.70 to 1.15:

C_p	±0.02
c_n	±0.03
c_m	±0.01
C_{N_A}	±0.02
$C_N{}'$	±0.04
$C_m{}'$	±0.02

TESTS

The data presented were obtained from pull-ups and wind-up turns at Mach numbers from 0.71 to 1.15 at an altitude of about 30,000 feet. Reynolds number based on the mean aerodynamic chord of the wing varied between 16×10^6 and 26×10^6.

DATA REDUCTION AND PRESENTATION

Automatic data reduction equipment, utilizing a card punch and a card program calculator, was used to obtain pressure coefficients from the data recorded on film. The calculator also performed the chordwise and spanwise integrations to obtain the normal-force and pitching-moment coefficients. The numerical integration was accomplished by means of parabolic arc approximations to the pressure functions. Comparison of numerical integrations with mechanical integrations of hand-faired pressure distributions gave excellent agreement.

The pressure coefficients and aerodynamic characteristics obtained from the wing differential pressure measurements are presented in tables IV to XIV for the approximate Mach numbers of 0.71, 0.77, 0.83, 0.88, 0.90, 0.92, 0.96, 0.99, 1.01, 1.10, and 1.15. The maneuvers at Mach numbers of 1.10 and 1.15 experienced a decrease in Mach number of about 0.06 from the given Mach number as the angle of attack increased. The data for the other Mach numbers are within ±0.01 of the approximate given Mach number, except for $M \approx 0.71$ and 0.83 which are within ±0.02 of the given Mach number. Data for a flap deflection of about 7° at Mach numbers of about 0.71, 0.76, and 0.80 are tabulated in tables XV to XVII.

RESULTS AND DISCUSSION

Chordwise Load Distribution

Representative chordwise load distributions selected from the tabulated data are presented as oblique projections in figures 4 to 9. Information concerning the upper and lower surface pressure distributions which result in these load distributions may be obtained from references 1 and 4.

Effect of angle of attack.- In general, the chordwise load distributions are similar at each wing station. As the angle of attack increased, an appreciable load quickly developed over the forward 20-percent chord resulting from the relatively sharp leading edge. At the lower Mach numbers tested the load at the leading edge reached a maximum at an angle of attack below maximum lift, at which point the leading-edge load suddenly decreased. At the higher Mach numbers tested the load at the leading edge increased until maximum lift was reached. According to references 5 and 6, the loss in leading-edge load at the lower Mach numbers resulted from separation of the flow over the upper surface of the leading edge. These references show that the leading-edge separation is a characteristic which occurs at Mach numbers less than 0.9 for airfoils with small leading-edge radii. Reference 7, which presents tuft pictures for an 0.16-scale model of the X-3 airplane in the Ames 16-foot high-speed wind tunnel, reports that at Mach numbers less than 0.8 the flow separated from the leading edge and progressed rearward to the trailing edge. At Mach numbers greater than 0.9 separation on the model began at the trailing edge and progressed forward.

At the intermediate Mach numbers of 0.83, 0.88, and 0.92 the influence of shock waves may be seen in the chordwise load distributions. The shock waves caused an abrupt decrease in load and a down-load near the trailing edge. At the supersonic Mach numbers the increase in load with increasing angle of attack was uniform at each chord station, unlike the subsonic Mach numbers.

Effect of Mach number.- Figure 10 shows the effect of Mach number on the load distribution over the midsemispan orifice station at $\alpha \approx 6^{\circ}$. Since the chordwise load distributions are similar at all the stations, figure 10 shows the changes with Mach number that are common to all the stations at low and moderate angles of attack. At $M \approx 0.71$ the chordwise loading was triangular, with most of the load occurring over the forward 50-percent chord. As the Mach number increased to 1.15, shock waves formed over the center of the wing section and moved rearward to the trailing edge, resulting in a rearward movement of the load.

Leading-edge separation boundary.- The approximate boundary for the leading-edge flow separation discussed previously was determined for the X-3 wing by plotting the differential pressure coefficient for the orifice closest to the leading edge against angle of attack and by noting the angle of attack at which C_p ceased to increase. Figure 11 shows representative plots at $M \approx 0.71$, 0.88, and 0.96. At $M \approx 0.96$ and greater, there was no clear indication of leading-edge separation below maximum lift. In figure 12 the results obtained from the differential pressure plots are shown for the root, midsemispan, and tip orifice stations. At $M \approx 0.71$ the flow separated first at the midsemispan at $\alpha \approx 4.5^\circ$ and spread to the tip and the root as the angle of attack increased to 8°. At $M \approx 0.88$ the flow separated first at the tip at $\alpha \approx 9^\circ$ and spread to the root at $\alpha \approx 12.5^\circ$. At $M \approx 0.92$ the flow separated along the entire leading edge at $\alpha \approx 13^\circ$. No leading-edge separation was evident below maximum lift at Mach numbers greater than 0.92.

Wing-Section Aerodynamic Characteristics

The variation with lift of the wing-section aerodynamic characteristics is presented in figure 13. Mach number effects are shown in figure 14 and the effect of spanwise location is shown in figure 15.

Section normal-force coefficient.- Figure 13 shows that the variation of c_n with α at each orifice station was essentially linear to near maximum lift for $M \approx 0.71$ and 0.77 and for Mach numbers of 0.92 and greater. At the intermediate Mach numbers of 0.83, 0.88, and 0.90, however, the c_n curves experienced an increase in slope below $c_n \approx 0.5$ and were erratic above this value. The chordwise load distributions indicate that the change in slope and erratic behavior of the normal-force curves resulted from abrupt movements of shock waves over the center portion of the modified hexagonal wing section and from flow separation (near maximum lift) from the leading edge.

At $M \approx 0.71$ maximum c_n varied from about 0.75 at the inboard stations to 0.58 at the tip. At Mach numbers greater than 1.0, maximum c_n was about 0.5 greater than at $M \approx 0.71$. The low maximum lift at the lower Mach numbers resulted from separation of the flow at the leading edge, which was discussed previously. This type stall has been called "thin airfoil stall" in reference 8. Included in this reference are the low-speed characteristics of a modified 4.23-percent-thick double-wedge airfoil which stalled at a lift coefficient of about 0.85, much lower than the thicker airfoils tested.

Figure 14(a) shows the variation with Mach number of the section normal-force coefficient for the midsemispan orifice station at several angles of attack. The figure shows that c_n increased rapidly between $M = 0.80$ and 0.95, the largest increase occurring at the higher angles of attack. At $\alpha = 12^\circ$ the increase in c_n with Mach number was especially large, since the wing was stalled at Mach numbers less than about 0.9.

Figure 14(b) shows the variation with Mach number of c_n curve slopes for the midsemispan orifice station at $\alpha = 3^\circ$ and 6°. At $\alpha = 3^\circ$ the slope increased with Mach number from a subsonic value of about 0.08 to a sonic value of about 0.13, then decreased to about 0.11 at $M = 1.15$. At $\alpha = 6^\circ$ the slopes were about the same except for the Mach number region of 0.80 to 0.95 where the slopes increased, resulting in an additional peak in the curve at $M \approx 0.88$.

Figure 15 shows that the normal-force characteristics of each wing section are similar. The section normal-force coefficient was slightly higher at the midsemispan orifice station than at the root or the tip stations, and the c_n curve slopes were about the same except for a slight decrease at the root orifice station.

Section pitching-moment coefficient.- In general, over the Mach number range from 0.71 to 0.92 the section pitching-moment coefficient about the quarter chord had an unstable variation with c_n over the lower c_n range (fig. 13). At moderate normal-force coefficients the variation gradually became stable. The change in slope apparently was caused by the rearward movement of separated flow from the leading edge, which has been discussed previously. The c_m curves at each wing section at these Mach numbers are similar to the low-speed pitching-moment characteristics of the 4.23-percent-thick modified double-wedge airfoil in reference 8. At $M \approx 0.88$, 0.90, and 0.92 the pitching-moment curves are erratic, similar to the c_n curves in this region. As the Mach number increased to 1.15 the variation of c_m with c_n became stable, except for the low-lift range at the tip where the variation was unstable at all Mach numbers tested. The stable (and almost linear) variations at these Mach numbers resulted from the uniform increase in normal load at each wing section compared to the nonuniform changes at the lower Mach numbers.

It was reported in reference 1 from preliminary data that during the maneuver at $M \approx 0.94$ an unstable break occurred in the c_m curve at $c_n \approx 0.60$ and that the curve became stable again at $c_n \approx 0.70$. Examination of the more complete data in figure 13(c) reveals that the unstable break reported in reference 1 was a Mach number effect rather than a lift effect. During the unstable break the Mach number decreased from 0.94 to

0.92 and as shown in figure 13(c), the level of c_m changes considerably between Mach numbers from 0.92 to 0.96.

Section center of pressure.- In general, the section center of pressure moved rearward with increasing normal-force coefficient (fig. 13). The rearward movement was small for the inboard stations (below wing stall), but amounted to about 40-percent chord at the tip.

Figure 14(c) includes the effect of Mach number on the section center of pressure for the midsemispan orifice station at $\alpha = 3^\circ$, 6°, 9°, and 12°. In general, between $M = 0.85$ and 0.95 the section center of pressure moved rearward, the rearward movement decreasing as the angle of attack increased. The load distributions in figure 10 show that the rearward movement of the section center of pressure occurred as a result of the increase in load over the rear part of the wing section as the shock waves moved rearward to the trailing edge. Figure 15 shows that the center-of-pressure movement was similar at each wing section, but that the center of pressure was located about 10 percent farther to the rear at the root than at the tip.

Spanwise Distributions

Spanwise load distributions.- Spanwise normal-load distributions are presented in figure 16 for representative Mach numbers and angles of attack. The shape of the distributions does not change appreciably over the Mach number and lift range tested, except at $\alpha \approx 3^\circ$ where the load at the wing tip is consistently low at all Mach numbers presented. The probable cause of this condition is the control-actuator fairing on the lower surface near the last orifice station. Wing stall had little effect on the shape of the distributions. The apparent change in shape in figure 16(b) at $\alpha = 10.1^\circ$ was caused by excessive aileron deflection.

Comparison of the load distributions at $M \approx 0.71$ with the theoretical methods of references 9 and 10 is made in figure 17. The charts in reference 9 were used to obtain the load distribution for the wing alone, and the method of reference 10 was used to calculate the wing load in the presence of the fuselage. In using reference 9 a section lift-curve slope of 2π per radian was used, resulting in an aspect ratio parameter $\beta A/k$ of 2.18. The assumed value of section lift-curve slope is reasonable according to the data for the modified 4.23-percent-thick double-wedge airfoil in reference 8. This airfoil had a lift-curve slope of about 0.118 per degree at low speed. Figure 17 is presented to compare the shape of the distribution with that obtained by theory, therefore the unit normal-load parameter was plotted for the portion of the distribution over the wing panel. Included in figure 17 is the portion of an elliptical distribution for the wing panel.

At moderate angles of attack (6.2° and 9.6°) the experimental distributions are nearly elliptical and the method of reference 9, which neglects the fuselage effects, is adequate in predicting the shape of the distribution. However, by using the method of reference 10, which accounts for fuselage effects at these angles, the load increases over the inboard semispan. Use of this method would cause the bending moment at the root of the wing to be slightly underestimated. At low lift ($\alpha = 3.2^\circ$) the experimental distribution does not agree with either of the theoretical methods.

Spanwise pitching-moment distribution.- The spanwise distributions of pitching moment about $0.25\bar{c}'$ for representative Mach numbers and angles of attack are shown in figure 18. At the lower Mach numbers tested, the pitching moment became more positive at the inboard stations and more negative at the outboard stations as angle of attack increased. After leading-edge flow separation occurred, the pitching moment at the inboard stations quickly decreased. As the Mach number increased to 0.99, the change in pitching moment at the fuselage decreased to near zero. At supersonic Mach numbers the pitching moment increased negatively at all stations as the angle of attack increased.

Wing-Panel Aerodynamic Characteristics

The variation with lift of the wing-panel aerodynamic characteristics is presented in figure 19. The data presented at high angles of attack were in some cases insufficient to obtain a fairing of C_N' with α, however the variation of C_{N_A} with angle of attack was used as a guide. Mach number effects are shown in figures 20 and 21.

Wing-panel normal-force coefficient.- The maximum normal-force coefficient of the wing panel was 0.66 at $M \approx 0.71$ and about 1.2 at supersonic Mach numbers (fig. 19(a)). Early separation of the flow from the leading edge was a contributing factor to the low maximum lift at Mach numbers less than 0.9, as discussed previously. The variation of C_N' with α in figure 19(a) was linear except in the transonic region of $M = 0.83$ to $M = 0.92$ where, because of the erratic wing-section behavior, the wing-panel variation was also erratic. At all Mach numbers tested, zero normal-force coefficient appears to occur at a positive angle of attack of from 1° to 2°. This is caused, in part at least, by the effects of the control-actuator fairings on the lower surface, which would tend to produce a down load at zero angle of attack.

The variation of C_N' with Mach number is shown in figure 20(a) at several angles of attack. The characteristics are similar to the wing section data. Comparison of C_N' with C_{N_A} in figure 20(a) shows that the airplane normal-force coefficient experienced the same variation with Mach number as was experienced by the wing-panel normal-force coefficient.

The variation $dC_N'/d\alpha$ with M (fig. 20(b)) was similar to that shown for the wing section. At $\alpha = 3^\circ$ the slope was about 0.076 per degree from $M = 0.71$ to $M = 0.83$. Between $M = 0.83$ and 1.00 the slope increased to 0.116 per degree, then decreased to 0.100 per degree at $M = 1.15$. The experimental slope of 0.076 per degree at $M = 0.71$ is higher than the theoretical values of 0.064 per degree from reference 9 and 0.061 per degree from reference 10. The variation of the normal-force-curve slope of the airplane was similar to that of the wing panel.

The contribution of the wing to the total normal force is shown in figure 21. As the angle of attack increased, the contribution of the wing decreased. At $\alpha = 6^\circ$ the wing contributed about 70 percent of the total normal force throughout the Mach number range presented.

Wing-panel pitching-moment coefficient.- Similar to most unswept wings, the X-3 wing had an unstable variation of C_m' with C_N' at low transonic Mach numbers (fig. 19(b)), except at high lift where flow separation changed the variation from unstable to stable. In the discussion of the wing-section characteristics, the separation was shown to start on the upper surface at the leading edge and to move rearward to the trailing edge. At $M = 0.83$ to 0.92 the C_m' curves were erratic because of the erratic wing-section behavior. As the Mach number increased, the wing became stable as a result of the rearward movement of the shock waves to the trailing edge.

Wing-panel bending-moment coefficient.- The variation of C_b' with C_N' was essentially linear at all Mach numbers (fig. 19(c)). At $M = 0.83$ to 0.92 there was little effect of the erratic wing-section behavior on the bending moment, which shows that the flow changes occurring at these Mach numbers were primarily chordwise, not spanwise changes. The slopes of the C_b' curves are constant with Mach number.

Wing-panel center of pressure.- At $M = 0.71$ to 0.83 the chordwise location of the center of pressure (fig. 19(d)) was constant at low lift, but moved rearward after the flow about the leading edge separated. At $M > 0.83$ the center of pressure moved rearward with increasing lift. The variation of the chordwise location with Mach number is shown in figure 20(c). The center-of-pressure movement of the wing panel was similar to that of the wing section in that it moved rearward between $M = 0.85$ and 0.95, the rearward movement decreasing as the angle of attack increased.

The spanwise location of the center of pressure (fig. 19(e)) was relatively constant with lift and Mach number at about 42 percent b'/2 at all Mach numbers tested.

Comparison With Wind-Tunnel Data

A comparison of flight data with wind-tunnel results at Mach numbers from 0.71 to 0.92 is shown in figures 22 to 24. The wind-tunnel data of reference 4 covered a Mach number range from 0.60 to 0.92, therefore the comparison is limited to subsonic and transonic speeds. Included in the comparisons are preliminary flight data from reference 1. Differences between the present data and preliminary flight data are evident, however the present data are considered more reliable. The difference in normal-force coefficient can be explained as resulting from a sparcity of measured points along the chord in the preliminary data particularly in the vicinity of the wing shock, a more refined airspeed calibration, and some discrepancy in the preliminary angle-of-attack measurements.

In general, the wind-tunnel and flight results are in good agreement below a Mach number of 0.90 and in fair agreement at Mach numbers of 0.90 and 0.92. At Mach numbers of 0.90 and 0.92 the normal-force coefficient for the wind-tunnel data is lower than that for the flight data over most of the lift range. The chordwise load distributions of figure 22(b) at $M = 0.92$ show good agreement in shape and location of the wing shock, however the differences in level may be associated with differences in angle of attack between the wind-tunnel and flight measurements. As a result of these differences, the spanwise load distributions in figure 24(b) at $M = 0.92$ do not agree in level, however the shape of the distributions would seem to be comparable.

Effect of Leading-Edge Flap Deflection

Preliminary data presented in figure 25 show the effect on the wing-panel aerodynamic characteristics of deflecting the leading-edge flap an average of 7° at $M = 0.71$, 0.76, and 0.80. At $M = 0.71$ and 0.76 the deflected flap increased the maximum normal-force coefficient about 0.06 but did not appreciably change the portion of the C_N' curve below $C_N' = 0.6$. The deflected flap decreased the pitching-moment coefficient slightly and delayed the break from an unstable to a stable variation to a higher angle of attack, undoubtedly the result of a delay in leading-edge separation. Bending moment was unaffected. No change in spanwise center-of-pressure location occurred, however the chordwise location was more to the rear at lower angles of attack and slightly farther forward at higher angles of attack.

CONCLUDING REMARKS

Wing loads and load distributions were obtained by pressure measurements over the left wing of the Douglas X-3 research airplane. The data cover the range from near zero lift to maximum lift and from a Mach number of 0.71 to 1.15.

The chordwise load distributions and the wing-section aerodynamic characteristics were similar at each wing station. A large load developed at the leading edge resulting from the relatively sharp leading edge. At Mach numbers below 0.9 separation of the flow from the leading edge resulted in a loss in leading-edge load and a low maximum lift. The maximum normal-force coefficient of the wing panel was 0.66 at a Mach number of 0.71 compared to 1.2 at supersonic Mach numbers. Spanwise load distributions were essentially elliptical throughout the lift and Mach number range tested. Values of normal-force-curve slope ranged from 0.076 per degree at a Mach number of 0.71 to 0.116 per degree at a Mach number of 1.0. Variation of pitching moment with lift was unstable at the lower Mach numbers, becoming increasingly stable above a Mach number of about 0.9. The chordwise location of the center of pressure varied with angle of attack between 15- and 30-percent chord at subsonic Mach numbers and between 31- and 37-percent chord at supersonic Mach numbers. The spanwise location of the center of pressure was relatively constant with lift and Mach number at about 42 percent of the panel span. The flight results are in good agreement with wind-tunnel results at Mach numbers below 0.90 and in fair agreement at Mach numbers of 0.90 and 0.92.

Deflecting the leading-edge flap about 7° over a Mach number range of 0.71 to 0.80, increased the maximum normal-force coefficient about 0.06 and moved the center of pressure rearward at the lower angles of attack and slightly forward at the higher angles of attack. No change occurred in the spanwise location of the center of pressure.

High-Speed Flight Station,
National Advisory Committee for Aeronautics,
Edwards, Calif., June 26, 1956.

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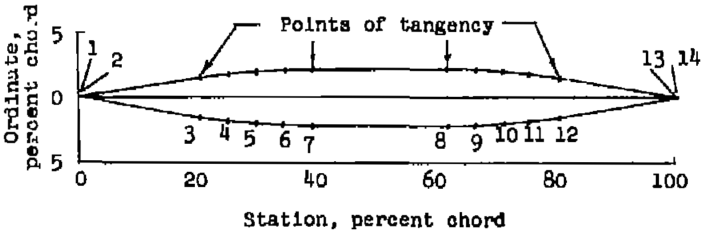
TABLE I.- PHYSICAL CHARACTERISTICS OF THE DOUGLAS X-3 AIRPLANE

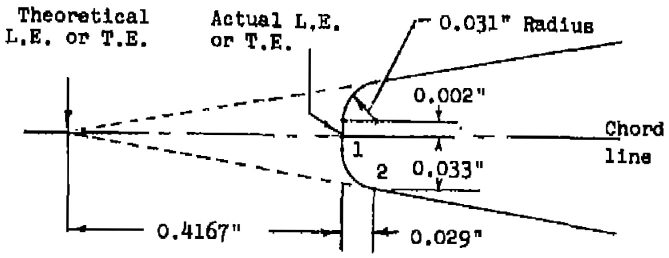
Wing:	
Airfoil section	Modified hexagon
Airfoil thickness ratio, percent chord	4.5
Total area, sq ft	166.50
Span, ft	22.69
Mean aerodynamic chord (wing station 4.81 ft), ft	7.84
Root chord, ft	10.58
Tip chord (extended), ft	4.11
Taper ratio	0.39
Aspect ratio	3.09
Sweep at 0.75 chord line, deg	0
Sweep at leading edge, deg	23.16
Sweep at trailing edge, deg	-8.12
Incidence, deg	0
Dihedral, deg	0
Geometric twist, deg	0
Leading-edge flap:	
Type	Plain
Area (each), sq ft	8.38
Span at hinge line (each), ft	8.916
Chord, normal to hinge line, in.	11.49
Travel, leading edge down, deg	30
Wing panel (outboard of wing station 3.415 ft):	
Area (one panel), sq ft	30.42
Span (one panel), ft	7.93
Mean aerodynamic chord (wing station 6.85 ft), ft	6.68
Average chord, ft	6.37
Horizontal tail:	
Airfoil section	Modified hexagon
Airfoil thickness ratio at root chord, percent chord	8.01
Airfoil thickness ratio outboard of station 26, percent chord	4.50
Total area, sq ft	43.24
Span, ft	13.77
Mean aerodynamic chord, ft	3.34
Root chord, ft	4.475
Tip chord, ft	1.814
Taper ratio	0.405
Aspect ratio	4.38
Sweep at leading edge, deg	21.14
Sweep at trailing edge, deg	0
Dihedral, deg	0
Travel:	
Leading edge up, deg	6
Leading edge down, deg	17
Hinge-line location, percent root chord	46.46
Vertical tail:	
Airfoil section	Modified hexagon
Airfoil thickness ratio, percent chord	4.5
Area, sq ft	23.73
Span, (from horizontal-tail-hinge line), ft	5.59
Mean aerodynamic chord, ft	4.69
Root chord, ft	6.508
Tip chord, ft	1.93
Taper ratio	0.292
Aspect ratio	1.315
Sweep at leading edge, deg	45
Sweep at trailing edge, deg	9.39
Rudder:	
Area, rearward of hinge line, sq ft	5.441
Span at hinge line, ft	3.535
Root chord, ft	1.98
Tip chord, ft	1.097
Travel, deg	±20
Fuselage:	
Length including boom, ft	66.75
Maximum width, ft	6.08
Maximum height, ft	4.81
Base area, sq ft	7.94
Powerplant:	
Engines	Two Westinghouse J34-WE-17 with afterburner
Rating, each engine:	
Static sea-level maximum thrust, lb	4,850
Static sea-level military thrust, lb	3,370
Airplane weight, lb:	
Basic (without fuel, oil, water, pilot)	16,120
Total (full fuel, oil, water, no pilot)	21,900
Center-of-gravity location, percent mean aerodynamic chord:	
Basic weight - gear down	2.65
Total weight - gear down	4.59
Total weight - gear up	3.91

TABLE II

PROFILE AND ORDINATES OF THE WING SECTIONS AT THE ORIFICE STATIONS

[Modified 4.5-percent-thick hexagonal airfoil]





DIMENSIONS OF L.E. AND T.E.
(Same at all stations)

Stations and ordinates in percent of local chord

Station number	Row 1		Row 2		Row 3		Row 4		Row 5	
	Station	Ordinate	Station	Ordinate	Station	Ordinate	Station	Ordinate	Station	Ordinate
1	0	±0.002	0	±0.002	0	±0.003	0	±0.003	0	±0.004
2	.028	±.032	.032	±.036	.037	±.042	.043	±.049	.052	±.059
3	22.382	±1.709	21.333	±1.634	19.948	±1.536	18.238	±1.414	15.998	±1.255
4	25.990	±1.946	25.438	±1.904	24.709	±1.848	23.812	±1.781	22.643	±1.691
5	29.604	±2.115	29.549	±2.096	29.477	±2.072	29.466	±2.041	29.300	±2.002
6	33.219	±2.216	33.663	±2.212	34.248	±2.206	34.969	±2.198	35.960	±2.189
7	36.836	±2.250	37.779	±2.250	39.023	±2.250	40.554	±2.250	42.625	±2.251
8	63.602	±2.250	62.721	±2.250	61.558	±2.250	60.120	±2.250	58.264	±2.251
9	67.000	±2.218	66.587	±2.214	66.043	±2.208	65.365	±2.201	64.524	±2.192
10	70.397	±2.123	70.451	±2.105	70.526	±2.082	70.610	±2.053	70.782	±2.016
11	73.791	±1.964	74.314	±1.925	75.005	±1.872	75.850	±1.809	77.035	±1.725
12	77.183	±1.741	78.172	±1.671	79.480	±1.579	81.116	±1.465	83.282	±1.314
13	99.972	±.032	99.968	±.036	99.962	±.042	99.953	±.049	99.998	±.059
14	100.000	±.002	100.000	±.002	100.000	±.003	100.000	±.003	100.000	±.004

TABLE III

CHORDWISE LOCATIONS OF THE STATIC PRESSURE ORIFICES

[Percent local chord]

Row	1			2			3			4			5		
Orifice	Upper	Lower	Average	Upper	Lower	Average	Upper	Lower	Average	Upper	Lower	Average	Upper	Lower	Average
1	2.1	2.1	2.1	2.6	2.2	2.4	2.5	2.5	2.5	2.5	2.5	2.5	5.2	5.2	5.2
2	5.0	5.0	5.0	4.9	4.7	4.8	4.8	4.9	4.9	5.0	5.0	5.0	7.4	7.5	7.5
3	7.8	7.6	7.7	7.6	7.5	7.6	7.3	7.4	7.4	7.4	7.5	7.5	14.4	14.2	14.3
4	9.3	9.0	9.2	10.0	9.9	10.0	10.1	10.1	10.1	10.2	10.3	10.3	24.6	25.0	24.8
5	15.3	15.1	15.2	15.2	15.2	15.2	17.8	18.0	17.9	13.9	13.9	13.9	29.0	29.5	29.3
6	20.0	19.9	20.0	21.3	21.2	21.3	20.2	20.3	20.3	20.5	20.5	20.5	37.9	38.0	38.0
7	25.0	24.9	25.0	24.9	24.8	24.9	24.4	24.4	24.4	25.1	25.2	25.2	47.3	47.5	47.4
8	29.5	29.6	29.6	33.1	32.8	33.0	29.5	29.6	29.6	29.2	29.4	29.3	61.9	62.0	62.0
9	37.4	37.4	37.4	38.1	37.8	38.0	37.9	37.9	37.9	37.9	37.9	37.9	68.2	68.3	68.3
10	47.6	47.5	47.6	47.5	47.3	47.4	47.4	47.4	47.4	47.3	47.5	47.4	75.6	75.7	75.7
11	55.5	55.4	55.5	55.0	54.5	54.8	55.0	55.0	55.0	54.8	54.9	54.9	79.9	80.2	80.1
12	62.0	62.0	62.0	62.0	61.8	61.9	64.6	64.5	64.6	61.8	61.9	61.9	84.5	84.7	84.6
13	69.0	69.0	69.0	68.9	68.7	68.8	68.7	68.7	68.7	68.4	68.5	68.5	90.0	90.0	90.0
14	74.2	74.1	74.2	74.2	74.0	74.1	74.1	74.0	74.1	75.3	75.5	75.4	92.4	92.4	92.4
15	80.0	80.0	80.0	80.0	79.8	79.9	80.0	80.0	80.0	79.8	80.0	79.9	97.4	97.4	97.4
16	85.4	85.0	85.2	85.0	84.8	84.9	85.0	84.9	85.0	84.8	85.0	84.9			
17	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0			
18	92.5	92.5	92.5	92.6	92.4	92.5	92.5	92.5	92.5	92.4	92.4	92.4			
19	98.3	98.1	98.2	97.9	97.9	97.9	97.7	97.7	97.7	97.4	97.4	97.4			

[redacted]

[redacted]

TABLE IV

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 0.71]$

(a) $M = 0.70$ $\alpha = 3.2^\circ$
$C_{N_A} = 0.06$ $\delta_{a_L} = 0^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.555	0.975	1.200	1.115	0.701
2	.470	.434	.691	.937	.581
3	.305	.340	.366	.634	.141
4	.307	.307	.235	.359	.052
5	.198	.188	.127	.195	.054
6	.187	.215	.184	.140	.079
7	.186	.094	.165	.117	.036
8	.105	.203	.231	.227	-.018
9	.140	.126	.154	.090	-.053
10	.078	.108	.106	.081	-.081
11	.074	.059	.090	.055	-.045
12	.069	.090	.018	.009	-.054
13	.032	.045	.018	-.027	-.009
14	.098	.063	.058	-.035	-.054
15	.018	.000	-.027	-.037	.000
16	.027	.017	.018	-.045	
17	-.009	.045	.027	-.035	
18	-.017	.036	.018	-.027	
19	.009	.053	.028	.037	
c_n	0.125	0.152	0.156	0.144	0.077
c_m	.0000	.0002	.0051	.0206	.0195

$C_N{}' = 0.135$
$C_m{}' = .0078$
$C_b{}' = .055$
$x'_{cp} = 19.2$
$y'_{cp} = 40.9$

(b) $M = 0.71$ $\alpha = 3.7^\circ$
$C_{N_A} = 0.11$ $\delta_{a_L} = 0^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.836	1.388	1.457	1.280	0.838
2	.580	.610	.989	1.154	.810
3	.449	.415	.615	.992	.289
4	.411	.360	.254	.670	.060
5	.309	.265	.204	.305	.088
6	.241	.246	.237	.184	.069
7	.229	.161	.220	.150	.089
8	.171	.211	.273	.247	-.026
9	.156	.141	.151	.106	-.018
10	.093	.177	.131	.088	-.097
11	.100	.083	.141	.054	-.009
12	.060	.106	.035	.035	-.045
13	.055	.027	.035	-.027	.000
14	.123	.062	.041	.000	-.053
15	.000	-.009	.018	-.063	.009
16	.044	.034	.035	-.009	
17	-.009	.035	.035	-.044	
18	-.017	.018	.017	-.018	
19	.009	.061	.027	.000	
c_n	0.164	0.193	0.193	0.194	0.127
c_m	.0019	.0032	.0055	.0232	.0184

$C_N{}' = 0.177$
$C_m{}' = .0097$
$C_b{}' = .074$
$x'_{cp} = 19.5$
$y'_{cp} = 42.0$

[redacted]

TABLE IV.- Continued.

[$M \approx 0.71$]

(c) $M = 0.71$ $\alpha = 4.2^\circ$
$C_{N_A} = 0.16$ $\delta_{a_L} = 0^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.201	1.639	1.721	1.410	0.939
2	.747	1.010	1.292	1.252	.922
3	.545	.477	.846	1.125	.479
4	.559	.503	.375	.903	.144
5	.361	.330	.256	.579	.052
6	.317	.323	.279	.272	.110
7	.270	.227	.297	.159	.070
8	.259	.266	.291	.301	.009
9	.217	.183	.210	.139	-.052
10	.125	.183	.172	.130	-.052
11	.090	.098	.148	.062	-.026
12	.084	.140	.061	.051	-.062
13	.085	.079	.052	-.035	.009
14	.112	.088	.064	.000	-.017
15	.034	.009	.017	-.080	.027
16	.026	.025	.043	-.009	
17	-.018	.052	.035	-.034	
18	-.008	.009	.026	-.009	
19	-.009	.043	.054	-.018	
c_n	0.218	0.249	0.244	0.244	0.161
c_m	.0049	.0060	.0061	.0260	.0225

$C_N' = 0.226$ $x'_{cp} = 19.3$
$C_m' = .0128$ $y'_{cp} = 41.6$
$C_b' = .094$

(d) $M = 0.71$ $\alpha = 4.6^\circ$
$C_{N_A} = 0.20$ $\delta_{a_L} = 0.1^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.426	1.613	1.829	1.473	1.037
2	.895	1.381	1.323	1.374	.987
3	.634	.871	.957	1.235	.591
4	.641	.547	.578	1.039	.169
5	.416	.374	.344	.666	.087
6	.350	.368	.389	.316	.101
7	.303	.261	.319	.204	.105
8	.270	.300	.346	.300	.017
9	.261	.226	.201	.139	-.034
10	.158	.191	.188	.104	-.087
11	.107	.106	.147	.106	.000
12	.101	.113	.069	.034	-.044
13	.077	.079	.035	-.009	.000
14	.120	.070	.072	.000	-.026
15	.026	.017	-.009	-.036	.027
16	-.009	.034	.034	-.043	
17	-.018	.077	.017	.000	
18	-.017	.026	.000	-.009	
19	-.008	.060	.018	.035	
c_n	0.247	0.278	0.278	0.265	0.195
c_m	.0085	.0090	.0110	.0291	.0228

$C_N' = 0.253$ $x'_{cp} = 18.7$
$C_m' = .0160$ $y'_{cp} = 41.7$
$C_b' = .106$

[redacted]

TABLE IV.- Continued.

[$M \approx 0.71$]

(e) $M = 0.71$ $\alpha = 5.4^\circ$
$C_{N_A} = 0.26$ $\delta_{a_L} = 0.1^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.749	1.983	1.504	1.693	1.212
2	1.239	1.870	1.259	1.608	1.139
3	.868	1.296	1.259	1.523	.758
4	.921	.659	1.128	1.380	.294
5	.593	.485	.808	.961	.207
6	.505	.458	.675	.383	.143
7	.369	.316	.545	.338	.140
8	.369	.345	.456	.356	.017
9	.278	.285	.261	.173	.000
10	.191	.242	.205	.146	-.060
11	.160	.154	.147	.106	.000
12	.142	.130	.086	.043	-.035
13	.077	.096	.009	-.009	.025
14	.146	.087	.072	-.043	.000
15	.025	.051	-.026	-.027	.000
16	.026	.042	.068	-.043	
17	-.009	.034	-.009	-.009	
18	-.008	.052	.034	-.026	
19	-.025	.043	.027	.009	
c_n	0.331	0.349	0.368	0.324	0.262
c_m	.0111	.0119	.0116	.0374	.0231

$C_N' = 0.323$
$C_m' = .0201$
$C_b' = .134$

$x'_{cp} = 18.8$
$y'_{cp} = 41.5$

(f) $M = 0.72$ $\alpha = 6.2^\circ$
$C_{N_A} = 0.31$ $\delta_{a_L} = 0.2^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.934	2.145	1.535	1.855	1.301
2	1.456	2.053	1.328	1.739	1.249
3	1.060	1.596	1.270	1.698	.930
4	1.006	.911	1.185	1.492	.433
5	.642	.604	.920	1.083	.299
6	.589	.499	.866	.524	.183
7	.487	.447	.697	.446	.147
8	.410	.375	.595	.490	.059
9	.337	.291	.370	.248	.000
10	.230	.300	.228	.171	-.043
11	.150	.177	.154	.113	.017
12	.124	.198	.060	.042	-.009
13	.076	.069	.026	.000	.000
14	.144	.069	.063	-.034	.009
15	.025	.042	.009	-.044	.000
16	.042	.058	.017	-.034	
17	.026	.051	.026	.017	
18	-.008	.043	.008	-.009	
19	.017	.017	.044	.026	
c_n	0.371	0.404	0.411	0.383	0.314
c_m	.0132	.0142	.0145	.0381	.0244

$C_N' = 0.373$
$C_m' = .0220$
$C_b' = .157$

$x'_{cp} = 19.1$
$y'_{cp} = 41.9$

TABLE IV.- Continued.

[$M \approx 0.71$]

(g) $M = 0.72$ $\alpha = 6.8^\circ$
$C_{N_A} = 0.35$ $\delta_{a_L} = 0.2^\circ$ down

Orifice	Row 1	2	3	4	5
1	2.105	2.146	1.595	1.836	1.195
2	1.587	2.122	1.334	1.788	1.123
3	1.256	1.822	1.331	1.735	.926
4	1.212	1.299	1.191	1.564	.588
5	.739	.679	1.036	1.264	.494
6	.587	.587	.949	.699	.273
7	.518	.456	.817	.622	.206
8	.430	.430	.713	.544	.050
9	.362	.358	.472	.324	.034
10	.262	.316	.311	.212	-.060
11	.193	.200	.230	.165	.009
12	.165	.180	.076	.084	-.017
13	.084	.086	.034	.000	.033
14	.135	.103	.032	-.025	-.009
15	.008	.042	.000	-.061	.052
16	.025	.041	.042	-.034	
17	.009	.059	.042	.000	
18	-.016	.043	.017	-.026	
19	.000	.042	.044	.009	
c_n	0.408	0.453	0.457	0.429	0.350
c_m	.0164	.0169	.0096	.0372	.0162

$C_N' = 0.417$
$C_m' = .0223$
$C_b = .175$

$x'_{cp} = 19.7$
$y'_{cp} = 42.0$

(h) $M = 0.72$ $\alpha = 7.7^\circ$
$C_{N_A} = 0.42$ $\delta_{a_L} = 0.6^\circ$ down

Orifice	Row 1	2	3	4	5
1	2.377	2.068	1.677	1.477	1.175
2	1.852	1.999	1.458	1.470	1.114
3	1.529	1.813	1.429	1.389	.943
4	1.420	1.651	1.356	1.304	.708
5	.965	1.127	1.137	1.167	.619
6	.718	.777	1.083	.960	.464
7	.618	.569	.935	.840	.364
8	.520	.490	.873	.780	.107
9	.408	.386	.582	.586	.083
10	.306	.369	.438	.392	-.008
11	.181	.228	.335	.324	.034
12	.202	.227	.083	.181	.042
13	.090	.076	.067	.034	.033
14	.141	.093	.039	.000	.033
15	.016	.008	.017	-.043	.034
16	.058	.089	.025	.017	
17	.009	.050	.033	-.008	
18	-.008	.050	.025	.034	
19	.025	.042	.043	-.017	
c_n	0.481	0.522	0.535	0.495	0.420
c_m	.0183	.0159	.0059	.0110	.0021

$C_N' = 0.485$
$C_m' = .0157$
$C_b' = .204$

$x'_{cp} = 21.8$
$y'_{cp} = 42.1$

[redacted]

[redacted]

TABLE IV.- Continued.

$[M \approx 0.71]$

(i) $M = 0.72$ $\alpha = 8.3^\circ$
$C_{N_A} = 0.46$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.341	1.817	1.667	1.533	1.136
2	2.041	1.802	1.393	1.406	1.129
3	1.694	1.650	1.443	1.391	.937
4	1.605	1.641	1.337	1.340	.761
5	1.056	1.348	1.151	1.181	.699
6	.844	1.104	1.077	.976	.542
7	.679	.837	.973	.857	.471
8	.614	.686	.900	.886	.189
9	.466	.542	.662	.674	.116
10	.344	.408	.484	.523	.008
11	.248	.258	.358	.424	.084
12	.209	.234	.149	.238	.059
13	.156	.042	.108	.134	.089
14	.124	.084	.092	.016	.042
15	.033	.008	.050	.017	.068
16	.066	.057	.082	.033	
17	.009	.058	.050	.066	
18	-.008	.008	.049	.051	
19	.024	.041	.043	.034	
c_n	0.534	0.572	0.564	0.553	0.468
c_m	.0175	.0140	-.0061	-.0026	-.0126

$C_N' = 0.531$
$C_m' = .0094$
$C_b' = .224$

$x'_{cp} = 23.2$
$y'_{cp} = 42.2$

(j) $M = 0.73$ $\alpha = 9.6^\circ$
$C_{N_A} = 0.54$ $\delta_{a_L} = 0.2^\circ$ down

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.979	1.698	1.729	1.515	1.120
2	1.900	1.681	1.533	1.446	1.145
3	1.733	1.618	1.512	1.388	.981
4	1.784	1.577	1.410	1.350	.728
5	1.397	1.336	1.155	1.143	.684
6	1.047	1.282	1.124	1.028	.626
7	.907	1.010	1.015	.892	.545
8	.761	.889	1.037	.922	.286
9	.593	.694	.762	.732	.200
10	.449	.605	.628	.658	.024
11	.315	.355	.483	.549	.155
12	.249	.275	.249	.357	.130
13	.129	.081	.176	.219	.118
14	.160	.122	.171	.143	.097
15	.071	.064	.097	.083	.049
16	.087	.110	.143	.105	
17	.033	.048	.056	.103	
18	-.031	.040	.095	.065	
19	.024	.056	.083	.074	
c_n	0.607	0.646	0.650	0.620	0.511
c_m	.0095	-.0043	-.0246	-.0240	-.0272

$C_N' = 0.600$
$C_m' = -.0066$
$C_b' = .252$

$x'_{cp} = 26.1$
$y'_{cp} = 42.0$

TABLE IV.- Continued.

$\left[M \approx 0.71\right]$

(k) $M = 0.73$ $\alpha = 10.8^{\circ}$
$C_{N_A} = 0.56$ $\delta_{a_L} = 0^{\circ}$

Orifice	Row				
	1	2	3	4	5
1	1.771	1.532	1.660	1.398	1.071
2	1.700	1.540	1.455	1.308	1.086
3	1.540	1.385	1.415	1.304	.882
4	1.604	1.448	1.336	1.192	.732
5	1.293	1.263	1.137	1.115	.658
6	1.113	1.219	1.056	.940	.663
7	1.046	.994	.999	.898	.584
8	.882	.948	.990	.886	.383
9	.806	.849	.582	.776	.322
10	.648	.770	.508	.703	.151
11	.481	.573	.681	.621	.281
12	.383	.454	.371	.476	.264
13	.191	.232	.315	.327	.232
14	.212	.255	.242	.235	.222
15	.148	.189	.246	.211	.122
16	.188	.200	.251	.206	
17	.131	.173	.158	.227	
18	.099	.143	.180	.144	
19	.008	.008	.098	.129	
c_n	0.679	0.708	0.656	0.645	0.551
c_m	-.0246	-.0418	-.0459	-.0505	-.0556

$C_N' = 0.641$ $x'_{cp} = 30.6$
$C_m' = -.0359$ $y'_{cp} = 41.4$
$C_b' = .265$

(l) $M = 0.73$ $\alpha = 12.2^{\circ}$
$C_{N_A} = 0.65$ $\delta_{a_L} = 0.1^{\circ}$ down

Orifice	Row				
	1	2	3	4	5
1	1.723	1.467	1.498	1.380	1.115
2	1.619	1.461	1.362	1.311	1.047
3	1.461	1.347	1.262	1.266	.874
4	1.521	1.368	1.204	1.227	.749
5	1.286	1.204	1.089	1.097	.643
6	1.136	1.180	1.038	.931	.649
7	1.049	.955	.949	.859	.578
8	.915	.982	.982	.909	.463
9	.824	.875	.600	.731	.370
10	.619	.804	.549	.673	.222
11	.564	.604	.691	.647	.314
12	.461	.566	.460	.508	.289
13	.319	.337	.435	.407	.272
14	.323	.336	.375	.282	.254
15	.257	.323	.318	.293	.154
16	.251	.301	.346	.262	
17	.197	.276	.269	.314	
18	.145	.207	.250	.185	
19	.008	.000	.107	.194	
c_n	0.707	0.739	0.674	0.663	0.571
c_m	-.0433	-.0645	-.0690	-.0611	-.0642

$C_N' = 0.665$ $x'_{cp} = 33.1$
$C_m' = -.0536$ $y'_{cp} = 41.3$
$C_b' = .274$

TABLE IV.- Concluded.

$[M \approx 0.71]$

(m) $M = 0.72$ $\alpha = 15.5^{\circ}$
$C_{N_A} = 0.66$ $\delta_{a_L} = 1.0^{\circ}$ down

Orifice	Row				
	1	2	3	4	5
1	1.440	1.286	1.297	1.231	1.130
2	1.349	1.260	1.141	1.180	1.041
3	1.218	1.197	1.079	1.083	.865
4	1.233	1.164	.978	1.115	.681
5	1.063	1.020	.887	.978	.596
6	.911	.951	.835	.808	.587
7	.896	.820	.814	.766	.561
8	.761	.814	.809	.804	.413
9	.752	.734	.713	.628	.375
10	.642	.742	.675	.618	.314
11	.564	.560	.612	.574	.367
12	.451	.517	.450	.499	.358
13	.294	.374	.392	.405	.323
14	.399	.373	.402	.413	.346
15	.300	.375	.379	.306	.231
16	.397	.415	.422	.346	
17	.341	.335	.328	.374	
18	.248	.332	.333	.310	
19	.016	.024	.058	.221	
c_n	0.652	0.673	0.635	0.629	0.572
c_m	-.0654	-.0783	-.0850	-.0757	-.0729

$C_N' = 0.621$
$C_m' = -.0700$
$C_b' = .260$

$x'_{cp} = 36.3$
$y'_{cp} = 41.9$

TABLE V

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

[$M \approx 0.77$]

(a) $M = 0.77$ $\alpha = 2.2^{\circ}$
$C_{N_A} = 0$ $\delta_{a_L} = 0.8^{\circ}$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.265	0.283	0.571	0.669	0.196
2	.202	.241	.181	.310	.239
3	.175	.175	.132	.285	.088
4	.149	.221	.099	.234	.008
5	.109	.055	.054	.172	.008
6	.065	.122	.129	-.022	.073
7	.043	.066	.044	.033	-.008
8	.065	.067	.216	.156	-.041
9	.061	.034	.059	.008	-.083
10	.032	.092	.058	.067	-.201
11	.009	.032	.067	-.017	-.110
12	.032	.051	-.042	.000	-.008
13	.007	.025	.008	-.084	-.082
14	.092	.076	.047	-.124	.000
15	-.049	-.008	-.017	-.112	-.017
16	.050	.000	.000	-.050	
17	.009	.067	.017	-.025	
18	-.048	.008	.025	-.034	
19	.025	.025	.104	.017	
c_n	0.057	0.078	0.081	0.052	0.000
c_m	.0000	-.0028	.0006	.0193	.0202

$C_N' = 0.059$ $x'_{cp} = 15.0$
$C_m' = .0059$ $y'_{cp} = 35.5$
$C_b' = .021$

(b) $M = 0.77$ $\alpha = 2.4^{\circ}$
$C_{N_A} = 0.04$ $\delta_{a_L} = 0.8^{\circ}$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.416	0.613	0.927	1.002	0.422
2	.313	.315	.371	.539	.291
3	.207	.250	.197	.348	.142
4	.217	.296	.163	.277	.049
5	.140	.142	.117	.213	.025
6	.108	.155	.160	.011	.081
7	.097	.142	.077	.109	-.008
8	.086	.100	.268	.200	-.041
9	.104	.050	.101	.017	-.066
10	.032	.108	.074	.100	-.242
11	.034	.023	.100	-.017	-.084
12	.040	.050	-.008	.000	-.008
13	.030	.042	.000	-.092	-.081
14	.091	.067	.039	-.148	-.008
15	-.033	-.033	.008	-.120	-.060
16	.033	.000	.016	-.042	
17	.009	.033	.017	-.033	
18	-.024	.008	.016	-.042	
19	.016	.058	.086	.042	
c_n	0.084	0.109	0.123	0.086	0.025
c_m	.0009	.0014	.0021	.0242	.0246

$C_N' = 0.090$ $x'_{cp} = 14.6$
$C_m' = .0094$ $y'_{cp} = 38.2$
$C_b' = .035$

TABLE V.- Continued.

[$M \approx 0.77$]

(c) $M = 0.77$ $\alpha = 3.5^\circ$
$C_{N_A} = 0.11$ $\delta_{a_L} = 0.8^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.731	1.221	1.325	1.268	0.873
2	.534	.779	.963	1.128	.772
3	.390	.368	.534	.900	.250
4	.386	.382	.304	.574	.081
5	.301	.249	.170	.371	.041
6	.226	.242	.255	.108	.105
7	.247	.217	.174	.227	.042
8	.172	.143	.331	.254	.000
9	.198	.108	.167	.091	-.058
10	.096	.141	.090	.124	-.232
11	.094	.086	.116	.034	-.092
12	.064	.058	.017	.033	-.008
13	.037	.067	.017	-.092	-.065
14	.099	.075	.054	-.139	-.017
15	-.033	-.008	-.025	-.136	-.025
16	.025	-.016	.016	-.050	
17	.000	.058	.000	-.041	
18	-.032	.008	.033	-.034	
19	.016	.016	.086	.008	
c_n	0.155	0.177	0.191	0.168	0.099
c_m	.0033	.0075	.0073	.0318	.0293

$C_N' = 0.160$ $x'_{cp} = 15.8$
$C_m' = .0148$ $y'_{cp} = 40.9$
$C_b' = .066$

(d) $M = 0.77$ $\alpha = 3.8^\circ$
$C_{N_A} = 0.14$ $\delta_{a_L} = 0.8^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.927	1.439	1.543	1.366	1.014
2	.645	1.072	1.176	1.260	.890
3	.498	.563	.708	1.051	.380
4	.477	.436	.401	.817	.097
5	.387	.282	.255	.541	.075
6	.237	.319	.319	.130	.089
7	.269	.228	.196	.184	.059
8	.204	.210	.353	.232	-.016
9	.224	.125	.167	.100	-.033
10	.120	.141	.131	.132	-.265
11	.094	.117	.166	.051	-.067
12	.088	.092	.000	.033	-.008
13	.044	.033	.041	-.108	-.073
14	.099	.075	.038	-.139	-.008
15	-.008	-.016	-.008	-.145	-.025
16	.041	-.024	.008	-.050	
17	.000	.049	.017	-.041	
18	-.032	.017	.008	-.042	
19	.032	.033	.077	.000	
c_n	0.188	0.216	0.224	0.194	0.133
c_m	.0036	.0109	.0114	.0365	.0317

$C_N' = 0.193$ $x'_{cp} = 15.5$
$C_m' = .0189$ $y'_{cp} = 40.9$
$C_b' = .079$

TABLE V.- Continued.

[M = 0.77]

(e) M = 0.77 $\alpha = 4.9^\circ$
$C_{N_A} = 0.21$ $\delta_{a_L} = 0.8^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.375	1.706	1.920	1.593	1.188
2	.917	1.504	1.490	1.490	1.118
3	.666	.935	1.093	1.323	.691
4	.665	.682	.592	1.173	.208
5	.491	.377	.401	.864	.074
6	.396	.404	.401	.343	.128
7	.320	.323	.335	.258	.067
8	.352	.263	.382	.340	.000
9	.256	.198	.224	.124	-.049
10	.143	.190	.163	.148	-.255
11	.119	.093	.173	.059	-.083
12	.080	.108	.025	.032	.000
13	.044	.058	.025	-.075	-.056
14	.106	.100	.053	-.155	-.016
15	.000	.000	-.017	-.135	-.042
16	.041	.008	.016	-.066	
17	.008	.049	-.008	-.065	
18	-.048	.000	.024	-.033	
19	.032	.049	.068	.000	
c_n	0.258	0.289	0.288	0.272	0.196
c_m	.0101	.0146	.0149	.0440	.0383

$C_N' = 0.262$ $x'_{cp} = 16.0$
$C_m' = .0236$ $y'_{cp} = 41.4$
$C_b' = .108$

(f) M = 0.77 $\alpha = 5.5^\circ$
$C_{N_A} = 0.25$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.625	1.907	2.055	1.753	1.384
2	1.090	1.655	1.592	1.664	1.230
3	.806	1.262	1.282	1.476	.788
4	.790	.898	.946	1.266	.261
5	.590	.457	.500	.957	.171
6	.444	.442	.490	.456	.142
7	.390	.382	.331	.392	.082
8	.337	.281	.440	.346	.008
9	.304	.220	.262	.154	-.032
10	.172	.204	.185	.170	-.211
11	.167	.130	.211	.083	-.025
12	.086	.114	.008	.048	.000
13	.051	.041	.049	-.049	-.040
14	.097	.098	.038	-.137	-.008
15	-.016	.000	.000	-.117	.000
16	.048	-.008	-.016	-.065	
17	.000	.064	.016	-.040	
18	-.039	.008	.016	-.033	
19	.024	.040	.075	.017	
c_n	0.295	0.329	0.343	0.315	0.249
c_m	.0130	.0193	.0208	.0448	.0357

$C_N' = 0.304$ $x'_{cp} = 16.3$
$C_m' = .0266$ $y'_{cp} = 42.0$
$C_b' = .128$

TABLE V.- Continued.

[M ≈ 0.77]

(g) $M = 0.77$ $\alpha = 6.2^\circ$
$C_{N_A} = 0.31$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.914	2.047	2.064	1.923	1.474
2	1.391	1.846	1.791	1.805	1.382
3	1.070	1.500	1.542	1.681	.969
4	1.001	1.311	1.334	1.466	.391
5	.646	.704	.711	1.193	.257
6	.585	.523	.649	.639	.188
7	.458	.462	.444	.514	.114
8	.427	.321	.497	.482	.016
9	.350	.250	.308	.209	.000
10	.193	.250	.238	.209	-.193
11	.182	.189	.209	.090	-.024
12	.124	.137	.040	.024	.008
13	.079	.073	.024	-.049	-.047
14	.120	.081	.030	-.175	.000
15	-.008	.000	-.008	-.115	.000
16	.040	.008	.016	-.064	
17	.000	.056	.008	-.024	
18	-.046	.024	.024	-.057	
19	.024	.040	.108	.008	
c_n	0.360	0.402	0.420	0.377	0.307
c_m	.0162	.0223	.0226	.0514	.0360

$C_N' = 0.370$
$C_m' = .0305$
$C_b' = .155$

$x'_{cp} = 16.8$
$y'_{cp} = 41.9$

(h) $M = 0.78$ $\alpha = 6.6^\circ$
$C_{N_A} = 0.34$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.078	2.212	2.069	1.918	1.532
2	1.538	1.915	1.830	1.853	1.451
3	1.235	1.601	1.580	1.718	1.040
4	1.108	1.392	1.446	1.559	.476
5	.727	.786	.894	1.231	.321
6	.594	.596	.791	.742	.218
7	.509	.493	.590	.585	.138
8	.478	.384	.568	.566	.040
9	.391	.281	.331	.257	-.008
10	.208	.265	.245	.216	-.201
11	.190	.166	.225	.090	.008
12	.147	.137	.016	.039	.016
13	.086	.065	.032	-.065	-.024
14	.127	.081	.045	-.158	-.016
15	-.016	.008	-.008	-.107	-.025
16	.032	.023	.000	-.064	
17	.008	.032	.000	-.040	
18	-.046	-.008	.024	-.041	
19	.039	.048	.074	.000	
c_n	0.393	0.431	0.454	0.407	0.340
c_m	.0179	.0256	.0254	.0506	.0355

$C_N' = 0.400$
$C_m' = .0324$
$C_b' = .168$

$x'_{cp} = 16.9$
$y'_{cp} = 42.0$

TABLE V.- Continued.

$[M \approx 0.77]$

(i) $M = 0.78$ $\alpha = 7.6^\circ$
$C_{N_A} = 0.42$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.358	2.128	1.835	1.988	1.415
2	1.814	2.027	1.697	1.903	1.314
3	1.536	1.787	1.578	1.736	1.143
4	1.435	1.653	1.486	1.642	.748
5	.954	1.235	1.190	1.393	.577
6	.739	.945	1.098	.970	.436
7	.632	.764	.894	.814	.243
8	.570	.469	.846	.789	.055
9	.482	.385	.548	.440	.008
10	.262	.305	.356	.359	-.184
11	.206	.188	.312	.196	-.016
12	.147	.153	.024	.087	.016
13	.093	.040	.024	-.016	.000
14	.127	.097	.022	-.158	.008
15	.031	-.016	.000	-.099	.008
16	.040	.031	.016	-.064	
17	.000	.024	-.016	-.024	
18	-.038	-.008	.039	-.057	
19	.016	.040	.099	.049	
c_n	0.477	0.520	0.537	0.504	0.414
c_m	.0221	.0280	.0164	.0432	.0260

$C_N' = 0.485$
$C_m' = .0308$
$C_b' = .205$

$x'_{cp} = 18.7$
$y'_{cp} = 42.2$

(j) $M = 0.78$ $\alpha = 8.2^\circ$
$C_{N_A} = 0.46$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.429	1.946	1.822	1.672	1.299
2	1.834	1.962	1.674	1.595	1.210
3	1.586	1.774	1.502	1.515	1.079
4	1.488	1.735	1.484	1.469	.762
5	1.087	1.338	1.199	1.299	.640
6	.842	1.072	1.137	.969	.545
7	.715	.920	.935	.865	.380
8	.683	.606	.906	.894	.150
9	.531	.505	.628	.608	.071
10	.331	.417	.442	.503	-.168
11	.247	.270	.408	.350	.024
12	.224	.193	.088	.213	.081
13	.100	.057	.080	.024	.016
14	.135	.089	.067	-.087	.056
15	.031	.016	.064	-.074	-.008
16	.079	.047	.055	.000	
17	.008	.024	.024	-.008	
18	-.031	.024	.039	.024	
19	.031	.032	.107	.016	
c_n	0.532	0.578	0.582	0.542	0.452
c_m	.0158	.0182	.0035	.0150	.0083

$C_N' = 0.532$
$C_m' = .0179$
$C_b' = .223$

$x'_{cp} = 21.6$
$y'_{cp} = 41.9$

TABLE V.- Continued.

[M ≈ 0.77]

(k) $M = 0.78$ $\alpha = 8.9^\circ$
$C_{N_A} = 0.50$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.316	1.760	1.691	1.594	1.233
2	1.934	1.727	1.518	1.547	1.133
3	1.633	1.612	1.456	1.427	1.023
4	1.625	1.667	1.396	1.401	.737
5	1.197	1.385	1.195	1.275	.662
6	.954	1.163	1.144	.956	.605
7	.846	1.021	.984	.894	.459
8	.754	.721	.965	.902	.236
9	.612	.631	.747	.685	.150
10	.368	.543	.582	.604	-.128
11	.312	.367	.486	.455	.097
12	.200	.248	.191	.330	.105
13	.128	.080	.143	.168	.055
14	.174	.096	.103	-.031	.080
15	.031	.040	.088	.008	.041
16	.094	.077	.103	.056	
17	.008	.047	.056	.087	
18	-.015	.040	.086	.040	
19	.031	.016	.115	.073	
c_n	0.580	0.615	0.623	0.586	0.482
c_m	.0127	.0037	-.0162	-.0060	-.0095

$C_N' = 0.571$
$C_m' = .0033$
$C_b' = .239$

$x'_{cp} = 24.4$
$y'_{cp} = 41.9$

(l) $M = 0.78$ $\alpha = 10.4^\circ$
$C_{N_A} = 0.58$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.950	1.681	1.670	1.521	1.254
2	1.796	1.633	1.507	1.495	1.185
3	1.685	1.529	1.456	1.395	1.034
4	1.679	1.551	1.427	1.369	.775
5	1.321	1.323	1.134	1.213	.694
6	1.057	1.237	1.134	.966	.620
7	.991	1.083	.963	.904	.523
8	.836	.859	1.057	.923	.370
9	.786	.775	.811	.733	.277
10	.575	.671	.755	.716	.032
11	.435	.532	.670	.568	.210
12	.324	.360	.334	.432	.193
13	.178	.233	.293	.272	.179
14	.198	.169	.192	.134	.183
15	.078	.150	.200	.139	.114
16	.142	.124	.174	.159	
17	.066	.142	.127	.189	
18	.008	.096	.149	.129	
19	.031	.008	.115	.122	
c_n	0.653	0.681	0.702	0.649	0.555
c_m	-.0087	-.0223	-.0436	-.0353	-.0372

$C_N' = 0.637$
$C_m' = -.0221$
$C_b' = .267$

$x'_{cp} = 28.5$
$y'_{cp} = 42.0$

TABLE V.- Concluded.

[$M \approx 0.77$]

(m) $M = 0.78$ $\alpha = 11.9^{\circ}$

$C_{N_A} = 0.61$ $\delta_{a_L} = 0^{\circ}$

Orifice	Row				
	1	2	3	4	5
1	1.778	1.548	1.583	1.434	1.189
2	1.674	1.484	1.407	1.428	1.120
3	1.494	1.370	1.327	1.309	.979
4	1.566	1.370	1.268	1.313	.758
5	1.328	1.226	1.121	1.180	.700
6	1.096	1.171	1.049	.943	.673
7	1.019	1.070	.982	.912	.586
8	.906	.910	1.004	.932	.456
9	.842	.836	.833	.779	.371
10	.612	.789	.777	.769	.135
11	.508	.657	.692	.664	.290
12	.430	.503	.397	.540	.305
13	.284	.297	.364	.360	.233
14	.276	.296	.324	.259	.255
15	.218	.276	.295	.220	.155
16	.267	.247	.299	.262	
17	.197	.260	.253	.283	
18	.168	.184	.266	.177	
19	.016	.024	.131	.178	
c_n	0.703	0.723	0.716	0.690	0.591
c_m	-.0387	-.0550	-.0684	-.0594	-.0591

$C_N' = 0.673$

$C_m' = -.0495$

$C_b' = .282$

$x'_{cp} = 32.4$

$y'_{cp} = 41.9$

TABLE VI

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 0.83]$

(a) $M = 0.82$ $\alpha = 2.3^\circ$
$C_{N_A} = 0.02$ $\delta_{a_L} = 0.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.344	0.354	0.695	0.791	0.301
2	.221	.302	.242	.424	.242
3	.166	.234	.147	.303	.118
4	.164	.236	.156	.289	.015
5	.077	.059	.096	.153	.015
6	.107	.109	.125	.010	.065
7	.058	.088	.049	.049	.015
8	.077	.089	.231	.199	-.037
9	.070	.067	.083	.045	-.052
10	.043	.112	.074	.060	-.112
11	.015	.035	.090	.038	-.045
12	.029	.068	.000	.015	-.008
13	.013	.045	.015	-.090	-.044
14	.089	.068	.041	-.022	-.022
15	-.044	-.037	.000	-.107	-.008
16	.007	.000	.000	-.015	
17	-.023	.052	.037	-.044	
18	-.050	.000	.007	-.015	
19	.022	.037	.054	-.008	
c_n	0.063	0.089	0.101	0.085	0.027
c_m	.0025	-.0022	.0006	.0142	.0141

$C_N' = 0.078$ $x'_{cp} = 19.4$
$C_m' = .0043$ $y'_{cp} = 40.3$
$C_b' = .031$

(b) $M = 0.83$ $\alpha = 2.4^\circ$
$C_{N_A} = 0.05$ $\delta_{a_L} = 0.3^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.397	0.487	0.887	0.923	0.430
2	.286	.326	.358	.554	.276
3	.259	.230	.184	.327	.106
4	.181	.242	.135	.304	-.007
5	.086	.106	.094	.216	.052
6	.124	.146	.141	.029	.043
7	.095	.096	.106	.077	.037
8	.095	.117	.237	.196	-.058
9	.076	.074	.096	.037	-.037
10	.071	.103	.065	.073	-.206
11	.030	.028	.081	.037	-.037
12	.043	.059	.000	-.036	-.052
13	.020	.015	.022	-.067	-.036
14	.109	.089	.054	-.080	-.044
15	-.050	-.036	-.007	-.083	-.008
16	.015	.014	-.007	-.037	
17	-.038	.036	.015	-.007	
18	-.035	.000	.000	-.037	
19	.007	.022	.061	.007	
c_n	0.079	0.101	0.110	0.090	0.035
c_m	.0004	-.0009	.0032	.0208	.0174

$C_N' = 0.087$ $x'_{cp} = 17.2$
$C_m' = .0068$ $y'_{cp} = 39.7$
$C_b' = .035$

[redacted]

[redacted]

TABLE VI.- Continued.

[M ≈ 0.83]

(c) $M = 0.83$ $\alpha = 3.1^\circ$
$C_{N_A} = 0.09$ $\delta_{a_L} = 0.7^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.623	0.947	1.194	1.315	0.597
2	.430	.466	.709	.482	.377
3	.343	.362	.355	.448	.191
4	.309	.345	.276	.437	.050
5	.208	.200	.168	.299	.095
6	.209	.194	.234	.133	.092
7	.161	.191	.163	.133	.052
8	.170	.165	.310	.252	-.050
9	.129	.124	.162	.066	-.058
10	.091	.139	.086	.109	-.372
11	.053	.041	.102	.015	-.081
12	.078	.088	.015	.007	-.081
13	.039	.037	-.015	-.103	-.043
14	.101	.073	.047	-.202	-.051
15	-.043	-.036	-.022	-.157	.000
16	.007	.007	.000	-.029	
17	-.045	.029	.007	-.029	
18	-.035	.007	.014	-.015	
19	.014	.029	.060	.007	
c_n	0.128	0.151	0.168	0.123	0.058
c_m	.0025	.0026	.0071	.0286	.0263

$C_N' = 0.130$ $x'_{cp} = 15.6$
$C_m' = .0122$ $y'_{cp} = 39.0$
$C_b' = .051$

(d) $M = 0.83$ $\alpha = 3.8^\circ$
$C_{N_A} = 0.16$ $\delta_{a_L} = 0.8^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.045	1.452	1.704	1.747	1.146
2	.601	.641	.820	1.336	.645
3	.490	.471	.465	.793	.180
4	.455	.466	.378	.452	.091
5	.309	.302	.250	.370	.101
6	.319	.307	.333	.217	.098
7	.262	.283	.275	.188	.051
8	.253	.240	.400	.308	-.029
9	.188	.181	.204	.130	-.072
10	.118	.174	.121	.101	-.369
11	.089	.075	.123	.052	-.102
12	.084	.094	.029	.000	-.022
13	.039	.022	.000	-.073	-.064
14	.093	.073	.060	-.193	-.007
15	-.028	-.029	-.036	-.148	-.022
16	-.007	.000	.014	-.058	
17	-.022	.043	-.014	-.036	
18	-.056	.000	.007	-.037	
19	.021	.014	.060	.022	
c_n	0.185	0.210	0.226	0.191	0.100
c_m	.0080	.0077	.0101	.0392	.0350

$C_N' = 0.186$ $x'_{cp} = 15.0$
$C_m' = .0186$ $y'_{cp} = 40.1$
$C_b' = .075$

TABLE VI.- Continued.

[$M \approx 0.83$]

(e) $M = 0.83$ $\alpha = 4.5^{\circ}$
$C_{N_A} = 0.22$ $\delta_{a_L} = 0.8^{\circ}$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.345	1.717	1.906	1.920	1.507
2	.850	1.532	1.469	1.617	1.359
3	.667	.742	1.296	1.477	.387
4	.621	.521	.659	1.160	.049
5	.466	.377	.314	.544	.065
6	.393	.392	.369	.253	.133
7	.354	.386	.322	.216	.058
8	.326	.297	.427	.288	.014
9	.247	.224	.239	.122	-.079
10	.173	.202	.121	.144	-.360
11	.096	.108	.130	.051	-.088
12	.097	.123	.050	.028	-.007
13	.045	.036	.022	-.072	-.042
14	.107	.073	.067	-.192	.000
15	-.042	-.029	-.036	-.133	-.022
16	.000	-.007	.014	-.058	
17	-.030	.043	.000	-.036	
18	-.048	.022	.000	-.022	
19	.000	.014	.067	.007	
c_n	0.246	0.283	0.287	0.263	0.172
c_m	.0109	.0136	.0159	.0471	.0426

$C_N' = 0.253$ $x'_{cp} = 15.3$
$C_m' = .0246$ $y'_{cp} = 41.1$
$C_b' = .104$

(f) $M = 0.83$ $\alpha = 5.2^{\circ}$
$C_{N_A} = 0.26$ $\delta_{a_L} = 0.8^{\circ}$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.543	1.846	2.003	1.999	1.581
2	1.068	1.643	1.585	1.738	1.462
3	.873	1.318	1.439	1.552	.895
4	.788	.833	1.236	1.421	.028
5	.562	.456	.474	1.192	.000
6	.490	.459	.465	.371	.097
7	.424	.483	.336	.250	.072
8	.424	.303	.421	.294	.014
9	.273	.228	.215	.092	-.071
10	.192	.192	.154	.128	-.370
11	.117	.107	.135	.058	-.058
12	.131	.107	.021	.014	-.036
13	.038	.065	.028	-.050	-.014
14	.134	.079	.059	-.232	-.036
15	-.042	-.028	-.043	-.124	.022
16	.007	-.028	.000	-.064	
17	-.037	.056	.007	.000	
18	-.027	.014	.007	-.029	
19	.000	.035	.059	.022	
c_n	0.301	0.323	0.353	0.310	0.237
c_m	.0115	.0203	.0256	.0555	.0462

$C_N' = 0.302$ $x'_{cp} = 14.9$
$C_m' = .0307$ $y'_{cp} = 41.8$
$C_b' = .126$

TABLE VI.- Continued.

$[M \approx 0.83]$

(g) $M = 0.84$ $\quad \alpha = 5.7^\circ$
$C_{N_A} = 0.31$ $\quad \delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.708	1.919	2.060	2.074	1.689
2	1.205	1.704	1.669	1.808	1.525
3	1.026	1.494	1.522	1.651	1.214
4	.922	1.367	1.367	1.505	.266
5	.691	.633	.972	1.321	.028
6	.612	.522	.747	.915	.055
7	.509	.496	.507	.513	.035
8	.482	.532	.452	.355	.014
9	.379	.204	.198	.070	-.035
10	.176	.197	.139	.077	-.288
11	.123	.119	.140	.029	-.043
12	.081	.106	.021	.014	-.007
13	.056	.064	.021	-.078	.007
14	.111	.064	.045	-.146	.007
15	-.014	-.035	-.028	-.144	.014
16	-.007	-.007	-.007	-.028	
17	-.036	.056	.000	-.049	
18	-.041	.000	-.007	.007	
19	.000	.035	.058	-.014	
c_n	0.338	0.394	0.400	0.374	0.300
c_m	.0178	.0260	.0315	.0573	.0482

$C_N' = 0.361$ $\quad x'_{cp} = 15.2$
$C_m' = .0353$ $\quad y'_{cp} = 42.1$
$C_b' = .152$

(h) $M = 0.84$ $\quad \alpha = 6.2^\circ$
$C_{N_A} = 0.35$ $\quad \delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.807	1.983	2.109	2.149	1.687
2	1.340	1.748	1.752	1.842	1.579
3	1.105	1.612	1.559	1.732	1.264
4	1.025	1.424	1.442	1.561	.547
5	.791	.825	1.120	1.376	.271
6	.704	.645	1.120	1.031	.081
7	.611	.617	.821	1.013	.014
8	.584	.646	.786	.628	.000
9	.526	.334	.196	.194	-.041
10	.174	.188	.110	.083	-.215
11	.129	.104	.118	-.007	.000
12	.101	.105	.007	-.034	-.007
13	.050	.042	.014	-.070	-.007
14	.096	.070	.058	-.213	.000
15	-.034	-.014	-.042	-.114	.014
16	-.027	.000	.014	-.028	
17	-.043	.034	.021	-.021	
18	-.027	-.021	-.021	-.035	
19	.014	.041	.079	.021	
c_n	0.384	0.436	0.468	0.421	0.346
c_m	.0201	.0279	.0336	.0621	.0479

$C_N' = 0.407$ $\quad x'_{cp} = 15.8$
$C_m' = .0377$ $\quad y'_{cp} = 42.4$
$C_b' = .173$

TABLE VI.- Continued.

$[M \approx 0.83]$

(i) $M = 0.84$ $\alpha = 6.9^{\circ}$
$C_{N_A} = 0.42$ $\delta_{a_L} = 0.5^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.931	2.073	2.194	2.243	1.765
2	1.451	1.844	1.806	1.921	1.675
3	1.259	1.664	1.639	1.792	1.355
4	1.160	1.541	1.549	1.643	.805
5	.893	1.045	1.245	1.455	.531
6	.825	.796	1.219	1.114	.262
7	.741	.730	1.105	1.105	.111
8	.714	.724	1.092	.936	-.020
9	.694	.774	.382	.414	-.034
10	.225	.186	.150	.309	-.269
11	.135	.078	.097	.084	-.007
12	.113	.111	-.048	-.041	.007
13	.037	.021	-.021	-.125	-.007
14	.096	.062	-.013	-.266	.000
15	-.027	-.027	-.021	-.156	-.021
16	-.014	-.007	-.020	-.076	
17	-.043	.034	.007	-.041	
18	-.046	.000	-.027	-.035	
19	.013	.048	.078	.007	
c_n	0.444	0.497	0.528	0.504	0.424
c_m	.0205	.0285	.0389	.0606	.0475

$C_N' = 0.473$ $x'_{cp} = 17.0$
$Cm' = .0380$ $y'_{cp} = 42.9$
$C_b' = .203$

(j) $M = 0.84$ $\alpha = 7.4^{\circ}$
$C_{N_A} = 0.46$ $\delta_{a_L} = 0.4^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	2.048	2.140	2.255	2.286	1.837
2	1.508	1.924	1.871	1.975	1.720
3	1.343	1.763	1.712	1.837	1.420
4	1.220	1.579	1.596	1.735	.887
5	.977	1.246	1.301	1.518	.590
6	.874	.910	1.266	1.153	.380
7	.826	.825	1.199	1.171	.201
8	.773	.776	1.237	.895	.020
9	.776	.804	.539	.494	-.048
10	.297	.227	.237	.404	-.281
11	.134	.097	.103	.217	-.028
12	.119	.083	-.041	.014	.014
13	.018	.007	-.041	-.097	.000
14	.088	.048	.000	-.278	.000
15	-.040	-.041	-.062	-.183	-.014
16	-.014	-.013	-.007	-.089	
17	-.014	.034	.000	-.054	
18	-.059	.000	-.007	-.049	
19	.007	.041	.071	.007	
c_n	0.479	0.531	0.579	0.539	0.469
c_m	.0211	.0318	.0352	.0575	.0449

$C_N' = 0.510$ $x'_{cp} = 17.6$
$Cm' = .0380$ $y'_{cp} = 43.1$
$C_b' = .220$

TABLE VI.- Continued.

[$M \approx 0.83$]

(k) $M = 0.85$ $\alpha = 8.2^\circ$
$C_{N_A} = 0.52$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.203	2.236	2.364	2.350	1.902
2	1.577	2.043	1.995	2.023	1.750
3	1.499	1.865	1.806	1.885	1.406
4	1.319	1.717	1.716	1.739	.758
5	1.098	1.439	1.393	1.487	.616
6	1.005	1.061	1.376	1.078	.492
7	.903	.938	1.267	.963	.373
8	.894	.891	1.330	.901	.169
9	.887	.808	.565	.663	.095
10	.309	.267	.412	.614	-.335
11	.141	.154	.328	.453	.042
12	.126	.117	.068	.276	.069
13	.043	.048	.027	.110	.060
14	.115	.055	.013	-.182	.055
15	-.020	-.020	-.014	-.098	.035
16	.034	.000	.020	-.021	
17	-.028	.041	.007	-.014	
18	-.039	.014	.027	.000	
19	.013	.020	.092	.028	
c_n	0.535	0.595	0.670	0.633	0.538
c_m	.0177	.0297	.0204	.0245	.0211

$C_N' = 0.583$
$C_m' = .0256$
$C_b' = .254$

$x'_{cp} = 20.6$
$y'_{cp} = 43.5$

(l) $M = 0.84$ $\alpha = 10.1^\circ$
$C_{N_A} = 0.56$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.051	1.589	1.900	1.219	1.027
2	1.863	1.564	1.720	1.133	.924
3	1.644	1.546	1.628	1.068	.740
4	1.602	1.469	1.620	1.034	.543
5	1.252	1.335	.794	.958	.484
6	1.027	1.184	.794	.683	.444
7	.917	1.041	.689	.683	.461
8	.838	.815	.763	.680	.330
9	.643	.730	.645	.552	.311
10	.511	.600	.632	.571	-.095
11	.428	.435	.613	.520	-.048
12	.355	.335	.360	.396	.028
13	.213	.179	.339	.322	.400
14	.203	.185	.309	.027	.395
15	.107	.155	.294	-.091	.307
16	.128	.199	.330	.238	
17	.084	.196	.305	.283	
18	.013	.116	.288	.255	
19	.033	-.007	.197	.180	
c_n	0.635	0.651	0.682	0.520	0.449
c_m	-.0081	-.0238	-.0553	-.0400	-.0439

$C_N' = 0.580$
$C_m' = -.0227$
$C_b' = .232$

$x'_{cp} = 28.9$
$y'_{cp} = 40.1$

[redacted]

TABLE VI.- Concluded.

[M ≈ 0.83]

(m) M = 0.84 α = 11.1°

C_{N_A} = 0.62 δ_{a_L} = 1.7° down

Orifice	Row				
	1	2	3	4	5
1	1.981	1.667	1.786	1.523	1.152
2	1.855	1.663	1.675	1.485	1.110
3	1.681	1.530	1.567	1.389	.929
4	1.669	1.524	1.577	1.434	.670
5	1.306	1.309	1.022	1.160	.661
6	1.143	1.239	1.013	.951	.584
7	.962	1.033	.851	.853	.585
8	.900	.943	.966	.898	.424
9	.764	.820	.824	.688	.386
10	.610	.710	.774	.723	.205
11	.519	.538	.709	.618	.366
12	.435	.445	.469	.517	.344
13	.280	.289	.373	.384	.327
14	.264	.295	.347	.384	.341
15	.134	.237	.321	.273	.265
16	.135	.285	.371	.334	
17	.148	.243	.278	.330	
18	.085	.192	.289	.276	
19	-.013	.007	.155	.201	
c_n	0.697	0.732	0.765	0.707	0.590
c_m	-.0229	-.0458	-.0712	-.0676	-.0792

C_N' = 0.687

C_m' = -.0469

C_b' = .289

x'_{cp} = 31.8

y'_{cp} = 42.1

[redacted]

TABLE VII

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 0.88]$

(a) $M = 0.88$ $\alpha = 1.6^\circ$
$C_{N_A} = -0.02$ $\delta_{a_L} = 0.1^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	0.172	0.147	0.352	0.368	0.136
2	.105	.214	.106	.268	.127
3	.103	.180	.095	.248	.026
4	.099	.147	.043	.209	.026
5	.068	.051	.008	.092	-.013
6	.043	.052	.025	-.017	.108
7	.042	-.026	.060	.017	.020
8	.034	.070	.203	.175	-.039
9	.048	.138	.198	.111	-.111
10	.032	.053	.039	.013	-.151
11	.020	.025	.046	.027	-.033
12	.038	.033	-.013	-.013	-.007
13	-.012	-.033	-.020	-.066	-.038
14	.130	.178	.152	-.039	-.026
15	-.051	-.065	-.059	-.067	-.013
16	-.032	-.032	.000	-.013	
17	-.007	.039	.013	.000	
18	-.019	.013	.000	-.007	
19	.019	.026	.041	-.007	
c_n	0.040	0.059	0.070	0.052	-0.002
c_m	-.0010	-.0040	-.0052	.0093	.0134

$C_N' = 0.048$ $x'_{cp} = 22.5$
$C_m' = .0012$ $y'_{cp} = 37.9$
$C_b' = .018$

(b) $M = 0.88$ $\alpha = 2.3^\circ$
$C_{N_A} = 0.06$ $\delta_{a_L} = 0.1^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	0.367	0.348	0.410	0.542	0.150
2	.265	.346	.230	.368	.185
3	.231	.275	.215	.391	.053
4	.196	.233	.151	.317	.046
5	.123	.124	.113	.183	.048
6	.088	.126	.131	.035	.066
7	.115	.098	.152	.098	.021
8	.088	.163	.245	.226	-.047
9	.148	.239	.267	.225	-.115
10	.065	.082	.060	.020	-.204
11	.035	.038	.061	.021	-.055
12	.039	.055	.014	-.013	-.034
13	-.012	-.007	.007	-.096	.000
14	.088	.062	.000	-.134	-.054
15	-.060	-.061	-.055	-.077	.035
16	-.034	.007	.007	-.027	
17	-.028	.013	.027	-.020	
18	-.026	.000	-.007	-.021	
19	.033	.027	.021	.021	
c_n	0.076	0.101	0.098	0.079	0.007
c_m	.0028	-.0003	.0004	.0173	.0141

$C_N' = 0.080$ $x'_{cp} = 16.6$
$C_m' = .0067$ $y'_{cp} = 36.9$
$C_b' = .029$

TABLE VII.- Continued.

$[M \approx 0.88]$

(c) $M = 0.88$ $\alpha = 2.6^\circ$
$C_{N_A} = 0.08$ $\delta_{a_L} = 0^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.514	0.395	1.068	1.277	0.412
2	.343	.404	.264	.445	.183
3	.290	.352	.257	.414	.053
4	.240	.283	.176	.359	.033
5	.174	.167	.155	.233	.094
6	.158	.143	.164	.035	.151
7	.140	.158	.177	.149	.041
8	.131	.188	.278	.224	-.060
9	.189	.283	.312	.243	-.107
10	.097	.081	.053	.000	-.216
11	.021	.051	.067	.027	-.061
12	.091	.068	.027	.000	-.034
13	-.012	.000	.007	-.102	-.013
14	.120	.034	-.006	-.113	-.027
15	-.059	-.067	-.061	-.076	.014
16	-.013	-.007	.013	-.047	
17	-.028	.020	.013	-.027	
18	-.019	.007	.000	-.014	
19	.026	.020	.028	-.007	
c_n	0.112	0.116	0.133	0.110	0.039
c_m	.0000	.0014	.0049	.0242	.0175

$C_N' = 0.104$
$C_m' = .0091$
$C_b' = .041$
$x'_{cp} = 16.2$
$y'_{cp} = 39.0$

(d) $M = 0.88$ $\alpha = 3.4^\circ$
$C_{N_A} = 0.15$ $\delta_{a_L} = 0^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.913	1.278	1.403	1.480	1.051
2	.542	.598	1.083	1.175	.941
3	.405	.448	.522	1.057	.124
4	.387	.354	.299	.520	-.013
5	.279	.282	.199	.319	.047
6	.263	.232	.242	.211	.203
7	.253	.247	.266	.237	.027
8	.227	.269	.399	.305	-.027
9	.273	.365	.400	.249	-.134
10	.201	.142	.080	.040	-.169
11	.083	.076	.061	.027	-.061
12	.091	.061	.020	-.020	-.020
13	.000	.007	.007	-.095	-.020
14	.087	-.027	-.031	-.107	-.013
15	-.073	-.047	-.068	-.097	.000
16	-.027	-.020	.000	-.047	
17	-.028	.033	.000	-.033	
18	-.019	.000	.000	-.007	
19	.026	.020	.028	.014	
c_n	0.181	0.183	0.204	0.188	0.097
c_m	.0038	.0105	.0141	.0333	.0304

$C_N' = 0.172$
$C_m' = .0177$
$C_b' = .070$
$x'_{cp} = 14.7$
$y'_{cp} = 40.9$

TABLE VII.- Continued.

[$M \approx 0.88$]

(e) $M = 0.88$ $\alpha = 4.2^\circ$
$C_{N_A} = 0.21$ $\delta_{a_L} = 0.3^\circ$ down

Orifice	Row 1	2	3	4	5
1	1.077	1.458	1.574	1.623	1.231
2	.774	1.279	1.278	1.330	1.102
3	.604	.885	1.085	1.210	.774
4	.560	.494	.912	1.082	.124
5	.409	.342	.258	.919	-.074
6	.358	.303	.284	.341	-.013
7	.330	.342	.335	.306	.020
8	.313	.357	.450	.411	-.013
9	.362	.444	.467	.295	-.113
10	.336	.377	.199	.013	-.134
11	.090	.050	.034	.014	.000
12	.091	.047	.000	-.033	.007
13	-.018	-.034	-.040	-.088	-.013
14	.073	-.034	-.012	-.086	.000
15	-.039	-.053	-.067	-.090	.007
16	-.027	-.007	.013	-.047	
17	-.028	.027	.000	-.013	
18	-.045	.000	-.007	-.020	
19	.020	.020	.021	.014	
c_n	0.246	0.269	0.294	0.269	0.184
c_m	.0057	.0136	.0196	.0418	.0371

$C_N' = 0.252$ $x'_{cp} = 16.2$
$C_m' = .0223$ $y'_{cp} = 41.9$
$C_b' = .105$

(f) $M = 0.88$ $\alpha = 4.6^\circ$
$C_{N_A} = 0.26$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row 1	2	3	4	5
1	1.222	1.535	1.681	1.730	1.330
2	.906	1.370	1.372	1.439	1.201
3	.750	1.117	1.151	1.319	.876
4	.677	.774	1.005	1.175	.429
5	.494	.419	.480	1.009	.395
6	.461	.364	.394	.680	-.072
7	.381	.350	.378	.540	-.041
8	.372	.409	.456	.543	-.066
9	.416	.502	.498	.415	-.119
10	.431	.469	.528	.027	-.100
11	.165	.088	.027	-.020	.014
12	.065	.047	-.067	-.079	-.020
13	-.036	-.054	-.100	-.128	.013
14	.046	-.040	-.049	-.112	-.013
15	-.052	-.046	-.080	-.103	.007
16	-.046	-.013	.007	-.040	
17	-.028	.020	.013	-.033	
18	-.032	-.007	-.013	-.014	
19	.020	.020	.028	.000	
c_n	0.290	0.318	0.351	0.326	0.250
c_m	.0078	.0155	.0196	.0480	.0411

$C_N' = 0.304$ $x'_{cp} = 16.9$
$C_m' = .0246$ $y'_{cp} = 42.6$
$C_b' = .129$

TABLE VII.- Continued.

[M ≈ 0.88]

(g) $M = 0.88$ $\alpha = 5.1^\circ$
$C_{N_A} = 0.31$ $\delta_{a_L} = 0.1^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.365	1.626	1.750	1.781	1.341
2	.967	1.476	1.411	1.511	1.223
3	.846	1.174	1.234	1.383	.927
4	.751	1.139	1.054	1.233	.489
5	.565	.562	.797	1.066	.443
6	.525	.430	.610	.741	.418
7	.463	.415	.469	.724	.000
8	.428	.457	.520	.801	-.137
9	.460	.530	.540	.503	-.171
10	.477	.504	.548	.165	-.172
11	.327	.416	.145	-.007	-.107
12	.089	.007	-.099	-.111	-.027
13	-.071	-.134	-.178	-.219	-.006
14	.020	-.087	-.092	-.222	-.007
15	-.084	-.092	-.126	-.170	-.007
16	-.052	-.026	.000	-.046	
17	-.048	.020	-.013	-.052	
18	-.038	.007	-.013	-.007	
19	.019	.007	.000	.000	
c_n	0.327	0.371	0.387	0.371	0.274
c_m	.0085	.0209	.0239	.0526	.0488

$C_N' = 0.346$ $x'_{cp} = 16.5$
$C_m' = .0294$ $y'_{cp} = 42.3$
$C_b' = .146$

(h) $M = 0.89$ $\alpha = 5.4^\circ$
$C_{N_A} = 0.35$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.511	1.675	1.808	1.804	1.394
2	1.050	1.483	1.439	1.552	1.287
3	.913	1.282	1.324	1.401	.967
4	.835	1.207	1.166	1.308	.575
5	.665	.646	.930	1.117	.495
6	.593	.528	.847	.803	.487
7	.524	.478	.675	.795	.513
8	.482	.512	.604	.855	-.133
9	.533	.553	.517	.700	-.280
10	.506	.534	.545	.589	-.289
11	.443	.507	.571	.262	-.176
12	.372	.419	-.026	-.063	-.026
13	-.034	-.104	-.185	-.207	-.013
14	-.025	-.162	-.178	-.317	-.006
15	-.107	-.204	-.232	-.329	.026
16	-.051	-.062	-.045	-.090	
17	-.027	.025	.000	-.082	
18	-.062	-.026	-.038	-.039	
19	.013	.025	.040	.013	
c_n	0.389	0.430	0.445	0.452	0.366
c_m	.0013	.0126	.0233	.0453	.0369

$C_N' = 0.411$ $x'_{cp} = 19.6$
$C_m' = .0221$ $y'_{cp} = 43.1$
$C_b' = .177$

TABLE VII.- Continued.

$[M \approx 0.88]$

(i) $M = 0.89$ $\alpha = 6.2^\circ$
$C_{N_A} = 0.45$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.660	1.799	1.897	1.893	1.474
2	1.237	1.580	1.540	1.642	1.375
3	1.029	1.447	1.406	1.507	1.066
4	.991	1.289	1.265	1.408	.673
5	.797	.879	1.026	1.213	.609
6	.683	.655	.994	.910	.549
7	.647	.595	.901	.911	.570
8	.581	.597	.825	.981	.380
9	.612	.648	.665	.833	-.076
10	.592	.604	.664	.838	-.385
11	.541	.590	.628	.502	-.402
12	.440	.496	.326	.120	-.039
13	.143	.188	-.115	-.155	-.013
14	.019	-.110	-.160	-.285	.006
15	-.088	-.184	-.218	-.441	.007
16	-.038	-.050	-.063	-.090	
17	-.033	-.019	-.038	-.114	
18	-.043	-.026	-.044	-.065	
19	.006	.000	.026	-.013	
c_n	0.473	0.512	0.559	0.553	0.452
c_m	-.0072	.0024	.0056	.0317	.0256

$C_N' = 0.500$
$C_m' = .0104$
$C_b' = .217$
$x'_{cp} = 22.9$
$y'_{cp} = 43.4$

(j) $M = 0.89$ $\alpha = 6.8^\circ$
$C_{N_A} = 0.52$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.795	1.895	1.981	1.985	1.549
2	1.358	1.689	1.636	1.735	1.458
3	1.162	1.555	1.507	1.624	1.150
4	1.070	1.374	1.357	1.502	.779
5	.905	1.105	1.125	1.304	.679
6	.775	.791	1.067	.994	.623
7	.730	.695	1.002	.986	.648
8	.664	.656	1.032	1.049	.430
9	.705	.713	.787	.916	.350
10	.635	.674	.727	.921	-.224
11	.594	.626	.705	.796	-.312
12	.520	.560	.460	.202	-.084
13	.132	.330	-.013	-.039	-.006
14	.095	-.039	-.095	-.171	.000
15	-.025	-.165	-.199	-.427	-.020
16	.038	-.044	-.051	-.083	
17	.013	-.013	-.057	-.108	
18	-.006	-.032	-.044	-.071	
19	.006	.000	.020	-.007	
c_n	0.541	0.582	0.642	0.633	0.549
c_m	-.0186	-.0046	-.0062	.0174	.0010

$C_N' = 0.575$
$C_m' = -.0009$
$C_b' = .252$
$x'_{cp} = 25.2$
$y'_{cp} = 43.7$

[redacted]

[redacted]

TABLE VII.- Continued.

$[M \approx 0.88]$

(k) $M = 0.89$ $\alpha = 8.4^\circ$
$C_{N_A} = 0.56$ $\delta_{a_L} = 0.3^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	2.019	2.060	2.154	2.157	1.738
2	1.570	1.862	1.797	1.884	1.638
3	1.361	1.762	1.698	1.764	1.299
4	1.322	1.556	1.513	1.653	.940
5	1.135	1.354	1.279	1.498	.723
6	.973	1.078	1.254	1.159	.560
7	.936	.911	1.210	1.143	.446
8	.845	.876	1.203	.946	.221
9	.877	.872	.857	.633	.127
10	.757	.833	.619	.562	-.038
11	.731	.583	.537	.502	-.052
12	.489	.437	.255	.328	-.175
13	.051	.052	.159	.161	-.113
14	.089	.006	.130	.076	-.122
15	-.088	-.235	-.103	-.144	.144
16	-.013	-.044	.025	-.173	
17	-.007	.057	.076	-.082	
18	-.037	-.006	.101	.013	
19	.025	.032	.112	.117	
c_n	0.633	0.669	0.704	0.643	0.545
c_m	-.0112	.0027	-.0109	.0154	.0210

$C_N' = 0.628$
$C_m' = .0068$
$C_b' = .265$

$x'_{cp} = 23.9$
$y'_{cp} = 42.1$

(l) $M = 0.89$ $\alpha = 9.5^\circ$
$C_{N_A} = 0.61$ $\delta_{a_L} = 0.3^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	2.136	2.179	2.296	2.182	1.711
2	1.696	2.003	1.899	1.933	1.569
3	1.525	1.885	1.805	1.795	1.270
4	1.485	1.722	1.653	1.693	.849
5	1.289	1.485	1.366	1.438	.706
6	1.144	1.346	1.349	1.096	.600
7	1.031	1.066	1.248	.946	.545
8	.990	1.016	1.265	.940	.330
9	.993	.991	.847	.726	.242
10	.864	.830	.684	.711	.096
11	.767	.476	.591	.634	.059
12	.354	.374	.397	.468	-.026
13	.097	.149	.275	.349	.075
14	.115	.065	.255	.235	.026
15	-.069	-.121	-.013	-.007	.066
16	-.013	.031	.121	-.013	
17	-.013	.108	.128	.013	
18	-.037	.039	.164	.007	
19	.031	.025	.106	.137	
c_n	0.698	0.746	0.787	0.718	0.597
c_m	-.0093	-.0019	-.0302	-.0150	.0088

$C_N' = 0.699$
$C_m' = -.0054$
$C_b' = .294$

$x'_{cp} = 25.8$
$y'_{cp} = 42.1$

TABLE VII.- Continued.

[$M \approx 0.88$]

(m) $M = 0.89$ $\quad\alpha = 10.8^\circ$
$C_{N_A} = 0.64$ $\quad\delta_{a_L} = 0.4^\circ$ down

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.253	2.315	2.379	1.869	1.198
2	1.849	2.127	2.036	1.787	1.074
3	1.706	2.001	1.887	1.624	.878
4	1.622	1.889	1.734	1.604	.671
5	1.468	1.616	1.312	1.220	.573
6	1.273	1.530	1.230	.932	.539
7	1.185	1.313	.999	.806	.514
8	1.126	1.088	1.103	.815	.414
9	1.123	.697	.928	.664	.345
10	.564	.607	.795	.662	.161
11	.338	.533	.715	.623	.163
12	.324	.434	.456	.489	.117
13	.241	.260	.397	.408	.227
14	.281	.201	.316	.280	.206
15	.051	.051	.136	.073	.218
16	.127	.175	.287	.097	
17	.080	.268	.314	.159	
18	.025	.175	.324	.202	
19	.013	.000	.206	.236	
c_n	0.733	0.809	0.842	0.687	0.526
c_m	−.0119	−.0165	−.0576	−.0376	−.0470

$C_N' = 0.720$ $\quad x'_{cp} = 27.7$
$C_m' = -.0195$ $\quad y'_{cp} = 40.6$
$C_b' = .292$

(n) $M = 0.89$ $\quad\alpha = 11.8^\circ$
$C_{N_A} = 0.68$ $\quad\delta_{a_L} = 0.5^\circ$ down

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.304	2.355	2.379	1.802	1.089
2	1.935	2.202	2.053	1.735	.983
3	1.791	2.051	1.938	1.616	.802
4	1.719	1.948	1.633	1.510	.608
5	1.527	1.667	1.189	1.195	.573
6	1.349	1.496	1.123	.865	.495
7	1.260	1.111	1.007	.806	.501
8	1.226	.805	.979	.798	.356
9	.996	.766	.624	.644	.326
10	.520	.691	.788	.617	.097
11	.431	.545	.715	.604	.157
12	.380	.485	.456	.470	.117
13	.328	.306	.429	.428	.214
14	.332	.279	.328	.299	.226
15	.126	.089	.187	.106	.270
16	.146	.307	.319	.097	
17	.133	.294	.340	.185	
18	.081	.285	.343	.196	
19	−.025	.032	.266	.289	
c_n	0.771	0.827	0.814	0.667	0.495
c_m	−.0193	−.0324	−.0619	−.0393	−.0465

$C_N' = 0.718$ $\quad x'_{cp} = 28.6$
$C_m' = -.0262$ $\quad y'_{cp} = 39.7$
$C_b' = .285$

TABLE VII.- Continued.

$[M \approx 0.88]$

(o) $M = 0.89$ $\alpha = 12.5^\circ$
$C_{N_A} = 0.76$ $\delta_{a_L} = 0.7^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	2.350	2.416	2.400	1.847	1.133
2	2.059	2.273	2.065	1.798	1.110
3	1.878	2.105	2.001	1.737	.982
4	1.827	2.036	1.779	1.624	.753
5	1.638	1.762	1.199	1.238	.671
6	1.426	1.584	1.182	1.009	.678
7	1.345	1.341	1.110	.900	.619
8	1.312	.961	1.122	.928	.516
9	1.279	.892	1.040	.794	.410
10	.583	.795	.898	.837	.219
11	.472	.618	.794	.782	.190
12	.387	.544	.528	.648	.170
13	.340	.352	.462	.513	.233
14	.307	.325	.364	.389	.265
15	.183	.147	.201	.146	.390
16	.166	.351	.377	.161	
17	.140	.365	.366	.306	
18	.093	.318	.343	.366	
19	-.069	.064	.266	.322	
c_n	0.834	0.910	0.893	0.793	0.600
c_m	-.0232	-.0452	-.0742	-.0692	-.0678

$C_N' = 0.817$ $x'_{cp} = 30.3$
$C_m' = -.0429$ $y'_{cp} = 41.2$
$C_b' = .337$

(p) $M = 0.88$ $\alpha = 14.4^\circ$
$C_{N_A} = 0.80$ $\delta_{a_L} = 1.0^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.909	1.657	1.774	1.583	1.286
2	1.702	1.640	1.855	1.608	1.246
3	1.478	1.436	1.514	1.506	1.032
4	1.577	1.627	1.549	1.552	.817
5	1.248	1.276	1.118	1.349	.775
6	1.134	1.253	1.160	1.171	.684
7	1.054	1.030	.967	.993	.697
8	.927	1.030	1.182	1.006	.515
9	.878	.881	.931	.801	.446
10	.839	.900	.842	.747	.267
11	.771	.820	.833	.723	.257
12	.686	.687	.565	.648	.329
13	.447	.513	.499	.511	.465
14	.433	.420	.446	.476	.488
15	.357	.433	.424	.220	.460
16	.411	.481	.483	.384	
17	.417	.478	.479	.515	
18	.344	.399	.475	.442	
19	.134	.200	.343	.398	
c_n	0.827	0.866	0.874	0.818	0.689
c_m	-.0832	-.0957	-.1017	-.0891	-.0886

$C_N' = 0.803$ $x'_{cp} = 35.5$
$C_m' = -.0844$ $y'_{cp} = 41.8$
$C_b' = .336$

TABLE VII.- Concluded.

$[M \approx 0.88]$

(q) $M = 0.88$ $\alpha = 15.2^\circ$
$C_{N_A} = 0.78$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.590	1.419	1.446	1.409	1.215
2	1.507	1.356	1.324	1.363	1.200
3	1.356	1.296	1.236	1.323	.976
4	1.395	1.280	1.178	1.262	.782
5	1.185	1.127	1.047	1.137	.699
6	1.020	1.075	1.021	1.013	.629
7	1.024	.965	.927	.928	.594
8	.872	.947	.968	.922	.463
9	.861	.884	.836	.738	.415
10	.823	.871	.793	.704	.183
11	.747	.767	.765	.645	.212
12	.657	.656	.528	.560	.277
13	.414	.482	.514	.467	.447
14	.408	.434	.435	.329	.458
15	.397	.421	.445	.148	.448
16	.439	.508	.498	.314	
17	.425	.480	.449	.458	
18	.377	.446	.464	.424	
19	.173	.220	.357	.399	
c_n	0.779	0.795	0.765	0.717	0.631
c_m	-.0895	-.1036	-.1059	-.0780	-.0772

$C_N' = 0.726$
$C_m' = -.0855$
$C_b' = .300$

$x'_{cp} = 36.8$
$y'_{cp} = 41.3$

TABLE VIII

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 0.90]$

(a) $M = 0.89$ $\quad \alpha = 2.6^\circ$

$C_{N_A} = 0.06$ $\quad \delta_{a_L} = 0.2^\circ$ down

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.538	0.455	1.198	1.279	0.665
2	.369	.376	.285	.507	.273
3	.292	.326	.219	.401	.025
4	.289	.328	.184	.400	.068
5	.174	.192	.131	.270	.096
6	.200	.170	.180	.058	.205
7	.149	.134	.202	.158	.071
8	.166	.213	.346	.239	-.063
9	.226	.288	.309	.205	-.133
10	.209	.250	.290	.345	-.096
11	.119	.060	.058	-.020	-.104
12	.074	.045	-.032	-.032	.000
13	.011	-.026	-.013	-.122	.000
14	.089	.148	.101	-.006	-.013
15	-.069	-.165	-.148	-.249	-.007
16	-.032	-.031	-.013	.000	
17	-.020	.044	.025	-.025	
18	-.012	.013	.000	-.006	
19	.031	.032	.059	-.026	
c_n	0.140	0.145	0.171	0.157	0.058
c_m	-.0017	-.0028	.0011	.0153	.0192

$C_N' = 0.137$ $\quad x'_{cp} = 21.6$

$C_m' = .0047$ $\quad y'_{cp} = 40.8$

$C_b' = .056$

(b) $M = 0.89$ $\quad \alpha = 3.1^\circ$

$C_{N_A} = 0.09$ $\quad \delta_{a_L} = 0.3^\circ$ down

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.821	1.129	1.360	1.340	0.969
2	.444	.482	.714	1.060	.807
3	.382	.407	.351	.657	.033
4	.340	.368	.225	.449	.025
5	.264	.250	.155	.301	.025
6	.232	.211	.212	.124	.180
7	.214	.191	.226	.216	.251
8	.181	.237	.394	.280	-.069
9	.251	.313	.366	.217	-.152
10	.269	.332	.358	.324	-.115
11	.138	.078	.083	.045	-.135
12	.080	.051	-.032	-.050	.000
13	-.006	-.013	-.032	-.115	-.031
14	.038	.115	.047	-.038	-.019
15	-.100	-.196	-.230	-.307	-.007
16	-.044	-.012	-.013	-.038	
17	-.013	.032	.013	-.013	
18	-.043	.026	.000	-.026	
19	.050	.025	.039	.000	
c_n	0.165	0.193	0.205	0.188	0.106
c_m	.0041	.0015	.0067	.0247	.0224

$C_N' = 0.175$ $\quad x'_{cp} = 19.1$

$C_m' = .0104$ $\quad y'_{cp} = 41.2$

$C_b' = .072$

[redacted]

[redacted]

TABLE VIII.- Continued.

[$M \approx 0.90$]

(c) $M = 0.89$ $\alpha = 3.7^\circ$
$C_{N_A} = 0.16$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	0.993	1.315	1.480	1.509	1.122
2	.638	1.143	1.114	1.224	.984
3	.489	.547	.975	1.094	.657
4	.460	.451	.489	.946	-.012
5	.345	.307	.236	.601	-.044
6	.330	.261	.244	.198	.056
7	.304	.274	.292	.273	.218
8	.304	.312	.433	.355	-.044
9	.336	.369	.422	.298	-.164
10	.323	.401	.457	.329	-.089
11	.248	.322	.216	.065	-.141
12	.129	.045	-.070	-.037	.006
13	-.045	-.070	-.088	-.121	-.019
14	.000	-.083	-.082	-.044	-.019
15	-.137	-.239	-.248	-.365	.006
16	-.056	-.025	-.006	-.025	
17	-.020	.038	.019	-.019	
18	-.024	.019	.006	-.013	
19	.025	.025	.039	.013	
c_n	0.223	0.243	0.260	0.260	0.178
c_m	.0053	.0128	.0131	.0311	.0316

$C_N' = 0.232$ $x'_{cp} = 17.4$
$C_m' = .0178$ $y'_{cp} = 42.6$
$C_b' = .099$

(d) $M = 0.89$ $\alpha = 4.2^\circ$
$C_{N_A} = 0.19$ $\delta_{a_L} = 0.5^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.045	1.433	1.578	1.591	1.206
2	.761	1.227	1.210	1.300	1.060
3	.593	1.013	1.053	1.179	.769
4	.570	.523	.874	1.058	.381
5	.466	.355	.299	.904	.246
6	.345	.343	.291	.362	.025
7	.376	.297	.332	.337	.076
8	.310	.378	.439	.412	-.012
9	.393	.424	.445	.322	-.144
10	.376	.424	.473	.340	-.063
11	.299	.373	.416	.058	-.058
12	.220	.209	-.082	-.056	.025
13	-.068	-.121	-.151	-.140	-.019
14	-.019	-.102	-.093	-.062	.013
15	-.142	-.244	-.247	-.304	-.019
16	-.050	-.031	.000	-.050	
17	-.039	.038	-.006	-.012	
18	-.030	.006	.006	-.038	
19	.019	.038	.046	.013	
c_n	0.261	0.291	0.319	0.299	0.231
c_m	.0039	.0109	.0160	.0371	.0352

$C_N' = 0.278$ $x'_{cp} = 18.2$
$C_m' = .0188$ $y'_{cp} = 42.7$
$C_b' = .119$

TABLE VIII.- Continued.

$[M \approx 0.90]$

(e) $M = 0.90$ $\alpha = 4.8^\circ$
$C_{N_A} = 0.26$ $\delta_{a_L} = 0.1^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.278	1.565	1.667	1.664	1.312
2	.866	1.358	1.321	1.416	1.135
3	.769	1.162	1.153	1.270	.846
4	.703	.948	1.008	1.177	.464
5	.552	.451	.603	1.011	.370
6	.448	.416	.482	.646	.348
7	.430	.328	.395	.678	.190
8	.374	.442	.509	.618	-.130
9	.443	.471	.493	.395	-.205
10	.416	.471	.526	.463	-.138
11	.349	.406	.483	.236	-.229
12	.309	.346	-.019	-.043	.013
13	-.011	-.076	-.175	-.183	-.012
14	-.044	-.152	-.180	-.254	-.025
15	-.197	-.354	-.377	-.354	-.019
16	-.062	-.049	-.062	-.107	
17	-.019	.006	-.025	-.068	
18	-.054	-.013	-.025	-.076	
19	.037	.019	.032	.006	
c_n	0.312	0.354	0.365	0.363	0.272
c_m	.0052	.0153	.0241	.0472	.0446

$C_N' = 0.332$ $x'_{cp} = 17.5$
$C_m' = .0250$ $y'_{cp} = 42.6$
$C_b' = .142$

(f) $M = 0.90$ $\alpha = 5.3^\circ$
$C_{N_A} = 0.32$ $\delta_{a_L} = 0^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.422	1.587	1.754	1.750	1.366
2	.956	1.419	1.410	1.476	1.207
3	.826	1.218	1.227	1.340	.917
4	.782	1.147	1.076	1.243	.532
5	.613	.586	.850	1.077	.455
6	.543	.513	.779	.704	.400
7	.469	.425	.549	.745	.447
8	.453	.490	.570	.777	.067
9	.491	.517	.507	.571	-.195
10	.461	.529	.558	.533	-.295
11	.424	.427	.528	.382	-.392
12	.338	.438	.355	.212	-.130
13	.241	.242	.226	-.056	.000
14	.030	-.006	-.153	-.303	.006
15	-.259	-.445	-.480	-.422	
16	-.067	-.090	-.116	-.147	
17	-.006	-.006	-.049	-.127	
18	-.047	-.019	-.036	-.106	
19	.030	.018	.038	.000	
c_n	0.369	0.424	0.452	0.439	0.340
c_m	-.0017	.0059	.0114	.0381	.0398

$C_N' = 0.402$ $x'_{cp} = 21.0$
$C_m' = .0161$ $y'_{cp} = 42.9$
$C_b' = .173$

TABLE VIII.- Continued.

$[M \approx 0.90]$

[redacted]

(g) $M = 0.91$ $\alpha = 5.7^\circ$
$C_{N_A} = 0.36$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.553	1.686	1.801	1.805	1.402
2	1.080	1.478	1.407	1.528	1.269
3	.917	1.320	1.305	1.385	.984
4	.895	1.219	1.124	1.298	.572
5	.690	.712	.939	1.124	.515
6	.614	.579	.862	.797	.460
7	.549	.499	.804	.805	.496
8	.502	.540	.655	.871	.341
9	.553	.570	.580	.715	.180
10	.518	.552	.604	.622	-.194
11	.455	.501	.575	.450	-.294
12	.416	.469	.381	.274	-.447
13	.281	.275	.338	.134	-.083
14	.126	.262	-.011	-.191	-.024
15	-.184	-.348	-.431	-.435	-.019
16	-.012	-.100	-.150	-.176	
17	.025	-.006	-.066	-.126	
18	.000	-.024	-.036	-.117	
19	.053	.012	.050	-.006	
c_n	0.438	0.485	0.505	0.507	0.417
c_m	-.0138	-.0065	.0031	.0265	.0226

$C_N' = 0.465$ $x'_{cp} = 24.0$
$C_m' = .0045$ $y'_{cp} = 43.1$
$C_b' = .200$

(h) $M = 0.91$ $\alpha = 6.2^\circ$
$C_{N_A} = 0.41$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.673	1.746	1.841	1.876	1.473
2	1.194	1.533	1.489	1.592	1.323
3	1.020	1.415	1.369	1.480	1.040
4	.970	1.282	1.203	1.387	.654
5	.792	.831	1.001	1.209	.576
6	.701	.643	.978	.860	.507
7	.620	.570	.899	.876	.532
8	.565	.596	.819	.919	.383
9	.591	.619	.622	.775	.337
10	.559	.607	.646	.834	-.061
11	.524	.529	.630	.543	-.129
12	.439	.511	.411	.304	-.337
13	.303	.294	.368	.201	-.118
14	.132	.287	.011	-.144	-.042
15	-.137	-.312	-.377	-.410	-.012
16	.006	-.082	-.150	-.188	
17	.056	-.006	-.036	-.084	
18	.058	-.024	-.036	-.086	
19	.053	.018	.037	.000	
c_n	0.488	0.530	0.559	0.575	0.483
c_m	-.0192	-.0109	-.0017	.0158	.0062

$C_N' = 0.517$ $x'_{cp} = 25.5$
$C_m' = -.0027$ $y'_{cp} = 43.6$
$C_b' = .225$

[redacted]

TABLE VIII.- Continued.

[M ≈ 0.90]

(i) $M = 0.90$ $\alpha = 6.9^\circ$
$C_{N_A} = 0.47$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.801	1.837	1.937	1.956	1.544
2	1.292	1.660	1.563	1.680	1.433
3	1.146	1.502	1.465	1.560	1.127
4	1.069	1.371	1.299	1.468	.766
5	.855	1.037	1.087	1.287	.655
6	.788	.780	1.056	.940	.601
7	.691	.649	.971	.964	.594
8	.659	.661	1.030	1.008	.425
9	.679	.680	.745	.866	.373
10	.623	.680	.712	.913	.073
11	.587	.569	.691	.814	-.012
12	.480	.542	.465	.418	-.159
13	.303	.373	.422	.195	-.083
14	.132	.244	.011	-.078	.048
15	-.125	-.276	-.316	-.373	.043
16	.018	-.112	-.192	-.261	
17	.113	.030	-.030	-.042	
18	.093	-.006	-.018	-.049	
19	.077	.036	.075	.012	
c_n	0.544	0.587	0.628	0.646	0.562
c_m	-.0240	-.0119	-.0073	-.0055	-.0114

$C_N' = 0.580$
$C_m' = -.0084$
$C_b' = .254$
$x'_{cp} = 26.4$
$y'_{cp} = 43.9$

(j) $M = 0.90$ $\alpha = 7.6^\circ$
$C_{N_A} = 0.52$ $\delta_{a_L} = 0.4^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	1.888	1.928	2.032	2.051	1.615
2	1.430	1.740	1.661	1.736	1.512
3	1.249	1.613	1.560	1.647	1.223
4	1.161	1.442	1.402	1.525	.878
5	.997	1.212	1.172	1.364	.715
6	.851	.908	1.141	1.066	.678
7	.808	.760	1.083	1.027	.655
8	.738	.766	1.116	1.089	.473
9	.767	.747	.946	.915	.403
10	.670	.753	.813	.979	.158
11	.655	.649	.739	.753	.037
12	.533	.572	.441	.322	-.061
13	.216	.428	.350	.061	-.136
14	.114	.159	.022	.006	-.139
15	-.089	-.234	-.273	-.224	-.006
16	-.006	-.171	-.198	-.236	
17	.125	.012	-.048	-.060	
18	.111	-.018	.006	-.012	
19	.101	.042	.113	.056	
c_n	0.593	0.637	0.690	0.684	0.612
c_m	-.0244	-.0096	-.0107	-.0044	-.0131

$C_N' = 0.627$
$C_m' = -.0079$
$C_b' = .274$
$x'_{cp} = 26.3$
$y'_{cp} = 43.7$

TABLE VIII.- Continued.

[M ≈ 0.90]

(k) M = 0.90 α = 8.5°
C_{N_A} = 0.55 δ_{a_L} = 0.4° down

Orifice	Row				
	1	2	3	4	5
1	2.016	2.026	2.127	2.146	1.717
2	1.511	1.842	1.751	1.856	1.567
3	1.336	1.716	1.640	1.765	1.302
4	1.285	1.562	1.497	1.630	.973
5	1.099	1.314	1.250	1.457	.812
6	.969	1.061	1.234	1.145	.642
7	.887	.863	1.194	1.153	.490
8	.863	.870	1.202	1.170	.239
9	.855	.856	1.068	.606	.186
10	.723	.838	.628	.556	.012
11	.718	.723	.539	.463	.031
12	.562	.517	.278	.328	-.061
13	.178	.300	.187	.189	-.059
14	.102	.122	.129	.114	-.042
15	-.048	-.204	-.043	-.081	-.062
16	-.048	-.224	.030	-.121	
17	.031	-.084	-.030	-.078	
18	.041	-.049	-.012	-.086	
19	.065	.054	-.063	.012	
c_n	0.640	0.679	0.703	0.655	0.574
c_m	-.0195	-.0014	-.0094	.0140	.0109

C_N' = 0.638 x'_{cp} = 24.6
C_m' = -.0029 y'_{cp} = 42.3
C_b' = .270

(l) M = 0.90 α = 9.4°
C_{N_A} = 0.63 δ_{a_L} = 1.1° down

Orifice	Row				
	1	2	3	4	5
1	2.089	2.164	2.232	2.266	1.821
2	1.626	1.962	1.867	1.946	1.693
3	1.479	1.867	1.776	1.862	1.398
4	1.402	1.698	1.601	1.736	1.020
5	1.264	1.442	1.344	1.582	.837
6	1.088	1.295	1.305	1.248	.661
7	1.013	1.030	1.298	1.201	.588
8	.974	.984	1.296	1.106	.299
9	.988	.966	.989	.752	.247
10	.828	.893	.742	.671	.103
11	.805	.678	.624	.568	.098
12	.604	.518	.375	.418	.031
13	.195	.312	.247	.274	.113
14	.150	.128	.213	.210	.085
15	-.018	-.096	.030	-.044	.037
16	.000	-.118	.120	-.036	
17	-.013	.018	.054	-.012	
18	.017	.000	.084	.018	
19	.053	.036	.000	.049	
c_n	0.715	0.760	0.785	0.738	0.658
c_m	-.0262	-.0090	-.0283	-.0052	-.0115

C_N' = 0.717 x'_{cp} = 26.3
C_m' = -.0094 y'_{cp} = 42.5
C_b' = .305

[redacted]

[redacted]

TABLE VIII.- Continued.

[M ≈ 0.90]

[redacted]

(m) M = 0.90 α = 10.9°
C_{N_A} = 0.68 δ_{a_L} = 1.0° down

Orifice	Row				
	1	2	3	4	5
1	2.214	2.268	2.325	2.240	1.740
2	1.779	2.055	1.996	1.984	1.566
3	1.652	1.992	1.878	1.852	1.333
4	1.591	1.808	1.726	1.790	.937
5	1.428	1.559	1.428	1.558	.830
6	1.213	1.487	1.405	1.200	.701
7	1.169	1.259	1.353	1.034	.624
8	1.114	1.136	1.318	1.016	.425
9	1.107	1.068	1.001	.812	.355
10	.944	.880	.843	.780	.206
11	.880	.649	.733	.703	.233
12	.615	.493	.465	.531	.171
13	.243	.318	.374	.439	.249
14	.216	.220	.297	.341	.230
15	.018	.024	.115	.131	.198
16	-.018	-.012	.210	.073	
17	.019	.150	.175	.174	
18	-.035	.116	.233	.153	
19	.036	-.024	.137	.160	
c_n	0.796	0.839	0.874	0.804	0.703
c_m	-.0284	-.0214	-.0509	-.0373	-.0446

$C_N{}'$ = 0.788
$C_m{}'$ = -.0259
$C_b{}'$ = .333

x'_{cp} = 28.3
y'_{cp} = 42.2

(n) M = 0.90 α = 12.3°
C_{N_A} = 0.73 δ_{a_L} = 0.6° down

Orifice	Row				
	1	2	3	4	5
1	2.359	2.384	2.390	1.962	1.476
2	1.980	2.214	2.093	1.862	1.215
3	1.816	2.094	1.956	1.762	1.007
4	1.753	1.974	1.834	1.723	.736
5	1.581	1.683	1.415	1.382	.684
6	1.381	1.611	1.392	1.026	.617
7	1.312	1.436	1.155	.955	.617
8	1.257	1.039	1.163	.894	.458
9	1.242	.813	.977	.751	.424
10	.687	.703	.909	.767	.208
11	.440	.608	.787	.721	.247
12	.354	.539	.578	.601	.000
13	.305	.376	.468	.522	.000
14	.375	.332	.418	.392	.000
15	.179	.163	.245	.175	.000
16	.199	.291	.375	.183	
17	.151	.357	.334	.235	
18	.100	.331	.373	.260	
19	-.042	.115	.258	.249	
c_n	0.829	0.899	0.930	0.782	0.584
c_m	-.0290	-.0434	-.0777	-.0579	-.0324

$C_N{}'$ = 0.804
$C_m{}'$ = -.0382
$C_b{}'$ = .327

x'_{cp} = 29.8
y'_{cp} = 40.6

[redacted]

TABLE VIII.- Concluded.

$[M \approx 0.90]$

(c) $M = 0.90$ $\alpha = 13.3^\circ$
$C_{N_A} = 0.79$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.420	2.451	2.354	1.913	1.244
2	2.103	2.281	2.110	1.802	1.150
3	1.950	2.184	2.028	1.807	.971
4	1.910	2.063	1.848	1.760	.769
5	1.704	1.792	1.472	1.391	.704
6	1.502	1.631	1.424	1.111	.661
7	1.392	1.380	1.217	1.014	.637
8	1.360	1.066	1.193	.995	.482
9	1.340	.922	1.039	.834	.429
10	.630	.829	.951	.850	.173
11	.522	.661	.846	.786	.213
12	.436	.577	.591	.645	.150
13	.353	.411	.498	.578	.236
14	.361	.336	.400	.366	.229
15	.242	.184	.211	.203	.234
16	.213	.360	.361	.173	
17	.210	.367	.332	.226	
18	.148	.335	.353	.238	
19	-.042	.116	.255	.302	
c_n	0.887	0.948	0.946	0.821	0.607
c_m	-.0843	-.0513	-.0785	-.0633	-.0595

$C_N' = 0.843$
$C_m' = -.0512$
$C_b' = .341$

$x'_{cp} = 31.1$
$y'_{cp} = 40.4$

TABLE IX

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

[M ≈ 0.92]

(a) $M = 0.92$ $\alpha = 1.7^{\circ}$
$C_{N_A} = 0.02$ $\delta_{a_L} = 0.9^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.170	0.215	0.363	0.354	0.128
2	.165	.209	.150	.293	.151
3	.104	.177	.089	.330	.024
4	.126	.154	.072	.205	-.012
5	.072	.040	.008	.118	.043
6	.048	.041	.055	-.040	.006
7	.048	.064	.073	-.080	.044
8	.024	.016	.198	.164	.164
9	.019	.049	.043	-.006	-.098
10	.071	.080	.115	.104	-.308
11	.032	.069	.166	.213	-.405
12	.107	.105	.055	.127	-.162
13	.049	.056	.049	-.068	-.060
14	.281	.236	.222	-.170	-.018
15	-.229	-.330	-.321	-.467	-.006
16	-.079	-.114	-.158	-.117	
17	-.070	-.006	-.018	-.061	
18	-.024	-.025	-.030	-.031	
19	-.006	.024	.057	-.006	
c_n	0.055	0.046	0.072	0.044	-0.019
c_m	-.0036	-.0019	.0001	.0175	.0259

$C_N' = 0.042$ $x'_{cp} = 12.1$
$C_m' = .0054$ $y'_{cp} = 34.6$
$C_b' = .015$

(b) $M = 0.92$ $\alpha = 2.2^{\circ}$
$C_{N_A} = 0.06$ $\delta_{a_L} = 1.1^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.323	0.291	0.338	0.474	0.136
2	.206	.281	.199	.333	.183
3	.193	.249	.145	.402	.048
4	.143	.226	.104	.286	.024
5	.111	.096	.063	.142	.049
6	.096	.082	.102	.000	.042
7	.088	.112	.105	-.032	.056
8	.064	.057	.230	.229	.170
9	.077	.080	.093	.025	-.018
10	.136	.166	.231	.153	-.412
11	.101	.156	.221	.282	-.486
12	.119	.105	.098	.186	-.267
13	.093	.068	.037	.037	-.060
14	.293	.248	.244	-.267	-.012
15	-.253	-.335	-.382	-.530	-.019
16	-.127	-.161	-.219	-.172	
17	-.057	-.012	-.049	-.103	
18	-.053	-.019	-.036	-.037	
19	.024	.012	.051	-.025	
c_n	0.084	0.089	0.102	0.071	-0.014
c_m	-.0033	.0001	-.0019	.0205	.0297

$C_N' = 0.072$ $x'_{cp} = 14.4$
$C_m' = .0077$ $y'_{cp} = 34.9$
$C_b' = .025$

TABLE IX.- Continued.

[M ≈ 0.92]

(c) $M = 0.92$ $\qquad$ $\alpha = 2.6^\circ$
$C_{N_A} = 0.10$ $\qquad$ $\delta_{a_L} = 1.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.467	0.374	1.018	1.184	0.613
2	.312	.367	.298	.453	.317
3	.280	.304	.177	.392	.024
4	.226	.206	.192	.334	.030
5	.151	.160	.094	.227	.049
6	.151	.130	.149	.040	.066
7	.103	.168	.145	.104	.130
8	.143	.106	.307	.245	.139
9	.121	.117	.154	.055	.036
10	.212	.251	.308	.342	−.349
11	.151	.236	.275	.305	−.490
12	.183	.123	.122	.187	−.402
13	.115	.074	.067	.086	−.084
14	.298	.265	.226	−.260	−.024
15	−.258	−.328	−.362	−.540	−.013
16	−.169	−.238	−.303	−.239	
17	−.070	−.036	−.061	−.109	
18	−.047	−.037	−.048	−.062	
19	.006	.024	.044	−.006	
c_n	0.128	0.124	0.158	0.132	0.029
c_m	−.0048	.0012	.0043	.0251	.0347

$C_N' = 0.117$
$C_m' = .0098$
$C_b' = .046$
$x'_{cp} = 16.7$
$y'_{cp} = 39.5$

(d) $M = 0.92$ $\qquad$ $\alpha = 3.4^\circ$
$C_{N_A} = 0.16$ $\qquad$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.859	1.166	1.287	1.380	0.984
2	.508	.637	1.022	1.104	.892
3	.406	.366	.682	1.005	.544
4	.359	.393	.327	.732	−.018
5	.277	.263	.156	.328	−.037
6	.246	.211	.203	.119	.042
7	.198	.247	.217	.183	.296
8	.221	.179	.354	.301	.109
9	.215	.281	.301	.140	.055
10	.288	.318	.374	.323	−.189
11	.214	.321	.378	.317	−.365
12	.230	.202	.152	.192	−.475
13	.174	.129	.103	.086	−.179
14	.339	.314	.215	−.127	−.037
15	−.275	−.357	−.392	−.507	−.012
16	−.241	−.344	−.381	−.214	
17	−.063	−.067	−.079	−.139	
18	−.076	−.043	−.048	−.093	
19	.018	.012	.031	−.025	
c_n	0.197	0.205	0.228	0.218	0.150
c_m	−.0020	.0060	.0098	.0299	.0385

$C_N' = 0.198$
$C_m' = .0136$
$C_b' = .084$
$x'_{cp} = 18.1$
$y'_{cp} = 42.4$

[redacted]

[redacted]

TABLE IX.- Continued.

[M ≈ 0.92]

(e) $M = 0.92$ $\alpha = 3.9^{\circ}$
$C_{N_A} = 0.20$ $\delta_{a_L} = 0.6^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.922	1.305	1.402	1.470	1.093
2	.649	1.089	1.143	1.230	1.000
3	.513	.702	.929	1.090	.697
4	.463	.469	.806	.934	.288
5	.392	.308	.225	.828	.109
6	.283	.273	.263	.276	.024
7	.282	.308	.246	.244	.092
8	.266	.233	.397	.370	.096
9	.289	.339	.353	.200	.078
10	.326	.363	.424	.320	-.073
11	.237	.352	.411	.277	-.171
12	.257	.243	.223	.185	-.373
13	.205	.165	.138	.097	-.260
14	.336	-.341	.235	-.006	-.048
15	-.225	-.276	-.333	-.409	-.012
16	-.251	-.423	-.413	-.224	
17	-.075	-.096	-.120	-.143	
18	-.070	-.073	-.083	-.086	
19	.024	.012	.037	-.025	
c_n	0.238	0.257	0.306	0.287	0.189
c_m	-.0033	.0096	.0122	.0293	.0429

$C_N' = 0.254$ $x'_{cp} = 18.9$
$C_m' = .0154$ $y'_{cp} = 42.9$
$C_b' = .109$

(f) $M = 0.92$ $\alpha = 4.3^{\circ}$
$C_{N_A} = 0.24$ $\delta_{a_L} = 0.5^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.984	1.333	1.446	1.522	1.169
2	.752	1.197	1.198	1.283	1.022
3	.606	.929	.983	1.167	.759
4	.545	.603	.867	.988	.364
5	.414	.371	.332	.864	.284
6	.369	.320	.317	.464	.147
7	.281	.323	.285	.354	.104
8	.320	.289	.443	.434	.066
9	.357	.393	.395	.278	.066
10	.336	.411	.458	.391	-.066
11	.280	.363	.446	.283	-.134
12	.268	.309	.259	.190	-.347
13	.242	.152	.168	.109	-.254
14	.311	.352	.246	.018	-.054
15	-.177	-.245	-.308	-.365	-.006
16	-.238	-.416	-.418	-.235	
17	-.062	-.126	-.132	-.137	
18	-.035	-.073	-.101	-.092	
19	.030	.012	.044	-.037	
c_n	0.274	0.299	0.338	0.333	0.231
c_m	-.0060	.0074	.0102	.0275	.0421

$C_N' = 0.293$ $x'_{cp} = 20.4$
$C_m' = .0134$ $y'_{cp} = 43.1$
$C_b' = .126$

TABLE IX.- Continued.

[M ≈ 0.92]

(g) $M = 0.92$ $\alpha = 4.9^\circ$
$C_{N_A} = 0.30$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.180	1.473	1.562	1.590	1.229
2	.840	1.273	1.252	1.376	1.098
3	.731	1.045	1.100	1.235	.828
4	.667	.903	.968	1.098	.439
5	.515	.449	.640	.932	.349
6	.439	.392	.455	.620	.363
7	.406	.401	.396	.604	.341
8	.367	.336	.481	.641	.083
9	.413	.440	.455	.379	.030
10	.411	.453	.505	.457	-.030
11	.360	.424	.500	.350	-.091
12	.297	.375	.330	.225	-.329
13	.258	.188	.246	.121	-.377
14	.335	.370	.290	.077	-.108
15	-.165	-.191	-.278	-.297	.006
16	-.208	-.386	-.388	-.331	
17	-.075	-.149	-.210	-.149	
18	-.029	-.085	-.136	-.079	
19	.053	.012	.025	-.031	
c_n	0.331	0.361	0.398	0.403	0.301
c_m	-.0097	.0045	.0063	.0247	.0370

$C_N' = 0.355$
$C_m' = .0101$
$C_b' = .154$

$x'_{cp} = 22.2$
$y'_{cp} = 43.4$

(h) $M = 0.92$ $\alpha = 5.4^\circ$
$C_{N_A} = 0.36$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.360	1.598	1.670	1.697	1.305
2	.959	1.373	1.348	1.437	1.174
3	.824	1.161	1.193	1.351	.906
4	.773	1.123	1.069	1.177	.509
5	.631	.597	.847	1.038	.421
6	.532	.463	.770	.697	.415
7	.475	.495	.553	.690	.444
8	.428	.416	.565	.801	.267
9	.487	.500	.521	.637	.072
10	.468	.512	.540	.534	.006
11	.440	.463	.541	.404	-.006
12	.331	.429	.348	.266	-.200
13	.306	.219	.305	.151	-.465
14	.382	.375	.345	.148	-.289
15	-.136	-.167	-.205	-.241	-.031
16	-.178	-.345	-.339	-.385	
17	-.161	-.221	-.311	-.166	
18	-.040	-.097	-.166	-.079	
19	.059	.024	.037	-.018	
c_n	0.391	0.424	0.467	0.477	0.365
c_m	-.0136	.0025	.0029	.0183	.0295

$C_N' = 0.419$
$C_m' = .0063$
$C_b' = .183$

$x'_{cp} = 23.5$
$y'_{cp} = 43.6$

TABLE IX.- Continued.

[M ≈ 0.92]

(i) $M = 0.93$ $\alpha = 6.0^\circ$
$C_{N_A} = 0.41$ $\delta_{a_L} = 0.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.502	1.636	1.741	1.776	1.368
2	1.032	1.444	1.421	1.509	1.275
3	.910	1.263	1.256	1.391	.993
4	.856	1.210	1.147	1.241	.561
5	.693	.684	.917	1.100	.493
6	.571	.542	.871	.760	.474
7	.537	.542	.750	.752	.474
8	.498	.472	.681	.873	.368
9	.530	.542	.557	.703	.280
10	.491	.548	.599	.714	.090
11	.495	.514	.577	.447	.079
12	.343	.465	.384	.308	-.085
13	.338	.243	.347	.181	-.400
14	.346	.382	.389	.190	-.343
15	-.094	-.155	-.163	-.185	-.092
16	-.148	-.310	-.304	-.355	
17	-.192	-.256	-.329	-.267	
18	-.121	-.175	-.284	-.110	
19	.071	.060	.056	-.006	
c_n	0.421	0.461	0.517	0.537	0.440
c_m	-.0109	.0021	.0013	.0109	.0125

$C_N' = 0.465$ $x'_{cp} = 24.4$
$C_m' = .0026$ $y'_{cp} = 44.3$
$C_b' = .206$

(j) $M = 0.93$ $\alpha = 6.7^\circ$
$C_{N_A} = 0.46$ $\delta_{a_L} = 0.3^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.615	1.712	1.812	1.854	1.449
2	1.143	1.511	1.497	1.590	1.356
3	1.004	1.369	1.363	1.472	1.054
4	.938	1.262	1.231	1.341	.644
5	.757	.873	.985	1.152	.561
6	.659	.657	.970	.839	.516
7	.625	.600	.869	.824	.536
8	.548	.571	.914	.929	.400
9	.606	.609	.654	.781	.355
10	.545	.621	.647	.833	.233
11	.540	.549	.638	.686	.248
12	.380	.503	.446	.370	.060
13	.367	.337	.392	.222	-.233
14	.331	.396	.441	.212	-.179
15	-.076	-.059	-.114	-.104	-.183
16	-.094	-.249	-.218	-.298	
17	-.129	-.213	-.291	-.359	
18	-.132	-.240	-.288	-.223	
19	.099	-.006	.018	-.006	
c_n	0.471	0.520	0.593	0.598	0.517
c_m	-.0147	-.0034	-.0100	.0041	-.0100

$C_N' = 0.516$ $x'_{cp} = 26.7$
$C_m' = -.0085$ $y'_{cp} = 44.9$
$C_b' = .232$

TABLE IX.- Continued.

$[M \approx 0.92]$

(k) $M = 0.93$ $\alpha = 7.1^\circ$
$C_{N_A} = 0.51$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.752	1.811	1.893	1.920	1.493
2	1.260	1.584	1.550	1.665	1.377
3	1.110	1.444	1.415	1.531	1.091
4	1.025	1.314	1.275	1.386	.723
5	.840	1.042	1.044	1.233	.601
6	.719	.734	1.029	.892	.590
7	.686	.684	.938	.915	.559
8	.624	.609	.996	.974	.435
9	.661	.656	.743	.839	.390
10	.578	.662	.687	.867	.250
11	.613	.604	.684	.788	.295
12	.425	.514	.481	.475	.126
13	.409	.384	.426	.275	-.163
14	.313	.407	.462	.217	-.113
15	-.023	-.024	-.101	-.128	-.146
16	-.065	-.208	-.183	-.256	
17	-.086	-.159	-.207	-.323	
18	-.109	-.209	-.229	-.253	
19	.087	-.047	-.061	.000	
c_n	0.520	0.566	0.638	0.644	0.559
c_m	-.0193	-.0086	-.0181	-.0023	-.0206

$C_N{}' = 0.570$ $x'_{cp} = 26.9$
$C_m{}' = -.0110$ $y'_{cp} = 44.3$
$C_b{}' = .253$

(l) $M = 0.93$ $\alpha = 7.7^\circ$
$C_{N_A} = 0.57$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.815	1.900	1.956	1.998	1.562
2	1.372	1.646	1.623	1.697	1.453
3	1.203	1.529	1.469	1.624	1.161
4	1.107	1.385	1.361	1.442	.804
5	.932	1.158	1.105	1.317	.672
6	.797	.868	1.105	.961	.648
7	.747	.739	1.000	.969	.631
8	.701	.696	1.080	1.053	.470
9	.729	.733	.911	.892	.449
10	.641	.721	.781	.938	.262
11	.637	.654	.738	.848	.343
12	.471	.544	.522	.633	.216
13	.441	.438	.474	.413	-.064
14	.307	.425	.490	.206	-.065
15	-.006	.047	-.089	-.122	-.073
16	-.029	-.173	-.124	-.226	
17	-.043	-.118	-.148	-.264	
18	-.046	-.167	-.176	-.223	
19	.000	-.083	-.141	.018	
c_n	0.571	0.625	0.703	0.708	0.624
c_m	-.0259	-.0164	-.0288	-.0147	-.0362

$C_N{}' = 0.629$ $x'_{cp} = 28.3$
$C_m{}' = -.0205$ $y'_{cp} = 44.4$
$C_b{}' = .279$

TABLE IX.- Continued.

[M ≈ 0.92]

(m) $M = 0.93$ $\alpha = 8.2^\circ$
$C_{N_A} = 0.60$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.902	1.953	2.011	2.045	1.640
2	1.444	1.732	1.679	1.792	1.515
3	1.258	1.584	1.556	1.687	1.232
4	1.180	1.510	1.431	1.521	.891
5	1.033	1.244	1.167	1.386	.720
6	.890	.947	1.182	1.039	.706
7	.801	.809	1.079	1.024	.673
8	.786	.760	1.134	1.125	.511
9	.797	.781	1.007	.952	.461
10	.675	.775	.840	.991	.310
11	.686	.688	.774	.927	.944
12	.506	.592	.564	.692	.313
13	.478	.481	.509	.545	-.029
14	.242	.461	.534	.206	.012
15	.012	.089	-.072	-.085	-.055
16	-.006	-.127	-.088	-.179	
17	.012	-.089	-.124	-.229	
18	.011	-.108	-.117	-.223	
19	-.017	-.124	-.172	-.006	
c_n	0.616	0.681	0.754	0.763	0.672
c_m	-.0294	-.0251	-.0379	-.0230	-.0439

$C_N' = 0.680$ $x'_{cp} = 29.1$
$C_m' = -.0279$ $y'_{cp} = 44.3$
$C_b' = .301$

(n) $M = 0.93$ $\alpha = 9.1^\circ$
$C_{N_A} = 0.66$ $\delta_{a_L} = 0.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.042	2.079	2.151	2.162	1.771
2	1.540	1.864	1.808	1.902	1.639
3	1.413	1.755	1.665	1.796	1.364
4	1.327	1.643	1.548	1.672	1.019
5	1.171	1.369	1.296	1.492	.857
6	.975	1.216	1.311	1.194	.793
7	.932	.980	1.212	1.171	.776
8	.917	.871	1.257	1.236	.576
9	.889	.888	1.127	1.071	.484
10	.778	.859	1.051	.932	.196
11	.735	.777	.750	.612	.193
12	.598	.675	.392	.434	.120
13	.419	.517	.314	.263	.041
14	.236	.461	.231	.182	.113
15	.029	.100	.101	-.037	-.006
16	.088	-.093	.112	-.036	
17	.104	-.030	.107	-.024	
18	.074	-.054	.076	-.012	
19	.000	-.118	.000	.018	
c_n	0.698	0.773	0.827	0.783	0.738
c_m	-.0397	-.0332	-.0440	-.0159	-.0412

$C_N' = 0.745$ $x'_{cp} = 29.0$
$C_m' = -.0300$ $y'_{cp} = 43.4$
$C_b' = .324$

TABLE IX.- Continued.

[$M \approx 0.92$]

(o) $M = 0.93$ $\alpha = 9.9^\circ$
$C_{N_A} = 0.70$ $\delta_{a_L} = 0^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.062	2.158	2.179	2.244	1.806
2	1.663	1.938	1.917	1.977	1.711
3	1.494	1.813	1.747	1.870	1.430
4	1.428	1.725	1.652	1.755	1.108
5	1.274	1.465	1.337	1.541	.937
6	1.078	1.345	1.368	1.275	.864
7	1.004	1.107	1.261	1.220	.826
8	1.019	.960	1.329	1.326	.560
9	.978	.974	1.207	1.115	.462
10	.849	.920	.936	.785	.215
11	.835	.846	.710	.650	.223
12	.651	.689	.464	.499	.157
13	.431	.476	.374	.342	.134
14	.290	.414	.309	.242	.179
15	.082	.112	.179	.055	.061
16	.124	.000	.224	.036	
17	.123	.077	.184	.065	
18	.115	.048	.182	.054	
19	.029	-.077	.068	.085	
c_n	0.767	0.835	0.876	0.828	0.786
c_m	-.0500	-.0416	-.0571	-.0258	-.0492

$C_N' = 0.798$
$C_m' = -.0386$
$C_b' = .344$
$x'_{cp} = 29.8$
$y'_{cp} = 43.1$

(p) $M = 0.93$ $\alpha = 10.9^\circ$
$C_{N_A} = 0.77$ $\delta_{a_L} = 0.3^\circ$ down

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.181	2.263	2.297	2.315	1.915
2	1.792	2.047	1.990	2.080	1.820
3	1.650	1.930	1.842	1.948	1.524
4	1.600	1.836	1.731	1.851	1.190
5	1.421	1.551	1.445	1.648	.979
6	1.233	1.488	1.452	1.345	.766
7	1.151	1.341	1.364	1.229	.729
8	1.120	1.095	1.398	1.207	.454
9	1.102	1.082	1.033	.919	.414
10	.946	.938	.889	.762	.274
11	.903	.807	.752	.674	.308
12	.663	.629	.548	.546	.247
13	.442	.476	.475	.396	.245
14	.397	.372	.414	.348	.298
15	.158	.195	.263	.116	.122
16	.153	.157	.325	.131	
17	.099	.278	.303	.153	
18	.120	.240	.300	.175	
19	-.029	.059	.197	.182	
c_n	0.849	0.913	0.932	0.858	0.807
c_m	-.0575	-.0551	-.0736	-.0383	-.0506

$C_N' = 0.853$
$C_m' = -.0481$
$C_b' = .362$
$x'_{cp} = 30.6$
$y'_{cp} = 42.4$

[redacted]

[redacted]

TABLE IX.- Continued.

[M ≈ 0.92]

(q) M = 0.93 α = 12.0°
C_{N_A} = 0.83 δ_{a_L} = 0.5° down

Orifice	Row				
	1	2	3	4	5
1	2.269	2.303	2.354	2.380	1.970
2	1.896	2.134	2.055	2.136	1.866
3	1.743	1.978	1.897	2.019	1.593
4	1.680	1.938	1.816	1.906	1.235
5	1.513	1.636	1.528	1.732	1.037
6	1.324	1.558	1.528	1.421	.828
7	1.226	1.472	1.432	1.273	.738
8	1.210	1.187	1.450	1.228	.533
9	1.194	1.140	1.013	.917	.476
10	.997	.954	.922	.855	.306
11	.969	.810	.827	.769	.340
12	.666	.656	.634	.649	.272
13	.486	.472	.537	.500	.305
14	.422	.398	.482	.379	.336
15	.206	.238	.294	.154	.227
16	.195	.227	.374	.168	
17	.179	.351	.340	.207	
18	.127	.307	.348	.206	
19	-.023	.137	.278	.244	
c_n	0.905	0.968	0.989	0.917	0.858
c_m	-.0634	-.0636	-.0860	-.0512	-.0624

C_N' = 0.907
C_m' = -.0575
C_b' = .385

x'_{cp} = 31.3
y'_{cp} = 42.4

(r) M = 0.92 α = 16.7°
C_{N_A} = 0.89 δ_{a_L} = 0.6° down

Orifice	Row				
	1	2	3	4	5
1	1.871	1.708	1.943	1.551	1.291
2	1.746	1.683	1.889	1.487	1.260
3	1.588	1.612	1.830	1.448	1.071
4	1.698	1.617	1.836	1.379	.848
5	1.467	1.432	1.404	1.294	.751
6	1.299	1.374	1.358	1.073	.742
7	1.239	1.203	1.098	1.034	.655
8	1.067	1.136	1.123	1.024	.526
9	1.050	1.007	.958	.872	.481
10	.885	.995	.932	.852	.236
11	.861	.870	.872	.758	.276
12	.714	.766	.695	.680	.398
13	.584	.611	.645	.542	.486
14	.499	.573	.583	.485	.563
15	.505	.565	.589	.267	.490
16	.520	.612	.624	.460	
17	.513	.601	.621	.550	
18	.466	.560	.614	.521	
19	.261	.318	.525	.481	
c_n	0.931	0.971	0.993	0.835	0.702
c_m	-.1051	-.1249	-.1279	-.1058	-.0917

C_N' = 0.876
C_m' = -.1035
C_b' = .357

x'_{cp} = 36.8
y'_{cp} = 40.8

TABLE IX.- Concluded.

[M ≈ 0.92]

(a) M = 0.91 $\alpha = 17.6^\circ$
$C_{N_A} = 0.89$ $\delta_{a_L} = 0.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.840	1.662	1.785	1.541	1.327
2	1.704	1.674	1.634	1.485	1.264
3	1.619	1.547	1.589	1.453	1.081
4	1.647	1.631	1.541	1.375	.856
5	1.472	1.421	1.339	1.298	.788
6	1.343	1.346	1.276	1.099	.743
7	1.274	1.214	1.140	1.043	.679
8	1.171	1.081	1.157	1.058	.543
9	1.072	1.010	1.009	.910	.509
10	.952	.986	.953	.866	.208
11	.881	.924	.917	.784	.266
12	.791	.804	.695	.692	.377
13	.632	.654	.663	.559	.496
14	.582	.585	.588	.423	.550
15	.533	.618	.576	.257	.538
16	.597	.629	.605	.458	
17	.593	.667	.614	.543	
18	.482	.595	.590	.514	
19	.305	.351	.492	.454	
c_n	0.972	0.977	0.957	0.841	0.717
c_m	-.1204	-.1323	-.1338	-.1044	-.0944

$C_N' = 0.880$
$C_m' = -.1090$
$C_b' = .358$

$x'_{cp} = 37.4$
$y'_{cp} = 40.6$

[redacted]

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TABLE X

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

[M ≈ 0.96]

(a) $M = 0.95$ $\alpha = 1.8^{\circ}$
$C_{N_A} = 0.01$ $\delta_{a_L} = 0.2^{\circ}$ down

Orifice	Row				
	1	2	3	4	5
1	0.159	0.192	0.237	0.301	0.107
2	.147	.179	.104	.312	.142
3	.100	.165	.087	.273	.014
4	.090	.152	.043	.241	.005
5	.064	.022	.014	.126	.016
6	.014	.051	.063	-.057	.011
7	.043	.022	.036	-.072	.022
8	.007	.044	.205	.161	-.005
9	.017	.016	.050	.016	-.022
10	.063	.082	.070	.071	.000
11	-.011	.041	.121	.089	.044
12	.064	.077	.033	.081	.022
13	.024	.017	.005	.022	-.134
14	.234	.188	.127	.157	-.165
15	.075	.044	.022	-.079	-.067
16	.135	.005	.054	-.071	
17	-.057	.120	.137	-.054	
18	-.248	-.061	.000	-.039	
19	.005	-.125	-.159	.017	
c_n	0.048	0.061	0.070	0.074	0.003
c_m	-.0050	-.0072	-.0115	-.0009	.0097

$C_N' = 0.056$
$C_m' = -.0042$
$C_b' = .023$

$x'_{cp} = 32.6$
$y'_{cp} = 40.7$

(b) $M = 0.95$ $\alpha = 2.2^{\circ}$
$C_{N_A} = 0.05$ $\delta_{a_L} = 0.2^{\circ}$ down

Orifice	Row				
	1	2	3	4	5
1	0.304	0.261	0.360	0.453	0.129
2	.221	.273	.148	.341	.135
3	.179	.237	.123	.323	.029
4	.150	.210	.101	.322	.016
5	.100	.079	.042	.162	.044
6	.071	.088	.113	-.014	.027
7	.071	.065	.101	-.043	.061
8	.064	.066	.269	.190	.027
9	.063	.055	.077	.022	.022
10	.090	.127	.119	.093	.038
11	.062	.114	.198	.118	.083
12	.106	.077	.082	.108	.067
13	.069	.044	.044	.077	-.081
14	.224	.194	.132	.168	-.099
15	.097	.065	.028	-.034	-.107
16	.157	.027	.071	-.071	
17	-.006	.136	.142	-.049	
18	-.222	-.039	.130	-.078	
19	.022	-.109	-.159	.022	
c_n	0.089	0.094	0.118	0.102	0.031
c_m	-.0097	-.0108	-.0212	-.0014	.0007

$C_N' = 0.089$
$C_m' = -.0082$
$C_b' = .036$

$x'_{cp} = 34.1$
$y'_{cp} = 40.5$

[redacted]

[redacted]

TABLE X.- Continued.

[M ≈ 0.96]

(c) $M = 0.95$ $\alpha = 2.7^\circ$
$C_{N_A} = 0.10$ $\delta_{a_L} = 0.2^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	0.455	0.384	1.079	1.155	0.728
2	.324	.344	.289	.515	.490
3	.244	.301	.151	.366	.022
4	.240	.318	.165	.329	.016
5	.142	.143	.077	.225	.027
6	.143	.124	.162	.036	.048
7	.100	.122	.108	.029	.055
8	.128	.117	.332	.256	.060
9	.097	.116	.144	.011	.098
10	.158	.193	.179	.148	.077
11	.113	.201	.253	.162	.083
12	.170	.132	.115	.178	.078
13	.108	.050	.093	.105	- .070
14	.240	.199	.142	.195	- .033
15	.118	.093	.044	- .017	- .146
16	.173	.043	.054	- .033	
17	- .017	.136	.158	- .043	
18	- .195	.050	.178	- .111	
19	- .016	- .098	- .125	- .006	
c_n	0.139	0.147	0.184	0.163	0.086
c_m	-.0151	-.0187	-.0214	-.0005	.0054

$C_N' = 0.144$ $x'_{cp} = 33.1$
$C_m' = -.0117$ $y'_{cp} = 42.1$
$C_b' = .061$

(d) $M = 0.95$ $\alpha = 3.3^\circ$
$C_{N_A} = 0.16$ $\delta_{a_L} = 0.2^\circ$ down

Orifice	Row				
	1	2	3	4	5
1	0.757	1.082	1.221	1.276	0.891
2	.471	.530	.919	1.007	.801
3	.351	.365	.598	.889	.496
4	.345	.353	.265	.708	- .032
5	.249	.208	.148	.309	- .044
6	.207	.197	.183	.079	.011
7	.178	.172	.173	.164	.039
8	.178	.175	.346	.292	.157
9	.171	.165	.193	.088	.142
10	.227	.280	.309	.175	.077
11	.158	.268	.340	.257	.083
12	.201	.193	.148	.167	.072
13	.166	.089	.115	.099	- .043
14	.305	.232	.142	.206	.016
15	.177	.098	.027	.006	- .135
16	.244	.059	.038	- .022	
17	- .040	.158	.164	- .005	
18	- .174	.099	.200	- .106	
19	- .032	- .103	- .125	- .017	
c_n	0.208	0.222	0.248	0.233	0.162
c_m	-.0226	-.0219	-.0224	.0041	.0081

$C_N' = 0.213$ $x'_{cp} = 31.0$
$C_m' = -.0129$ $y'_{cp} = 42.4$
$C_b' = .090$

TABLE X.- Continued.

[M ≈ 0.96]

(e) $M = 0.95$ $\alpha = 3.9^\circ$
$C_{N_A} = 0.21$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.858	1.190	1.299	1.361	0.990
2	.603	1.008	1.029	1.100	.893
3	.465	.544	.842	.995	.610
4	.420	.425	.680	.825	.133
5	.319	.272	.190	.708	.022
6	.264	.240	.232	.164	.011
7	.227	.222	.202	.207	.011
8	.220	.233	.388	.314	.135
9	.233	.209	.243	.121	.141
10	.274	.329	.362	.301	.027
11	.214	.304	.406	.257	.044
12	.207	.242	.186	.173	.039
13	.186	.116	.125	.105	-.070
14	.310	.248	.188	.173	.011
15	.199	.158	.016	-.017	-.112
16	.238	.064	.043	-.055	
17	-.028	.185	.120	-.038	
18	-.153	.143	.194	-.100	
19	-.059	-.130	-.107	-.017	
c_n	0.246	0.281	0.319	0.282	0.186
c_m	-.0243	-.0250	-.0226	.0077	.0165

$C_N' = 0.264$ $x'_{cp} = 29.7$
$C_m' = -.0125$ $y'_{cp} = 42.0$
$C_b' = .111$

(f) $M = 0.95$ $\alpha = 4.4^\circ$
$C_{N_A} = 0.26$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.944	1.279	1.421	1.432	1.061
2	.705	1.108	1.103	1.187	.956
3	.586	.908	.950	1.088	.704
4	.525	.576	.795	.934	.325
5	.412	.344	.316	.834	.263
6	.335	.298	.295	.436	.165
7	.270	.279	.238	.329	.083
8	.277	.270	.416	.394	.087
9	.284	.324	.326	.164	.060
10	.342	.395	.416	.399	-.011
11	.265	.335	.433	.285	.022
12	.254	.330	.262	.200	.011
13	.215	.138	.191	.110	-.096
14	.337	.265	.213	.179	.000
15	.209	.196	.027	-.039	-.079
16	.270	.122	.027	-.082	
17	.011	.196	.120	-.076	
18	-.100	.187	.167	-.078	
19	-.096	-.130	-.073	.000	
c_n	0.300	0.343	0.369	0.345	0.242
c_m	-.0315	-.0334	-.0255	.0073	.0214

$C_N' = 0.321$ $x'_{cp} = 30.3$
$C_m' = -.0169$ $y'_{cp} = 42.2$
$C_b' = .135$

TABLE X.- Continued.

[$M \approx 0.96$]

(g) $M = 0.95$ $\alpha = 4.9^{\circ}$
$C_{N_A} = 0.30$ $\delta_{a_L} = 0.6^{\circ}$ up

Orifice	Row 1	2	3	4	5
1	1.107	1.357	1.482	1.521	1.151
2	.792	1.205	1.159	1.285	1.053
3	.663	.984	1.034	1.157	.786
4	.636	.898	.886	1.026	.399
5	.467	.393	.616	.895	.312
6	.398	.370	.434	.541	.303
7	.333	.336	.330	.542	.309
8	.311	.327	.443	.633	.097
9	.369	.383	.380	.257	.038
10	.373	.433	.458	.425	-.038
11	.321	.385	.476	.317	-.050
12	.264	.368	.289	.205	-.033
13	.244	.166	.250	.132	-.112
14	.336	.275	.238	.124	-.049
15	.241	.244	.104	-.056	-.084
16	.297	.149	.022	-.109	
17	.135	.255	.120	-.070	
18	-.005	.231	.145	-.116	
19	-.118	-.136	-.073	-.022	
c_n	0.349	0.405	0.418	0.395	0.303
c_m	-.0382	-.0379	-.0279	.0114	.0199

$C_N' = 0.374$
$C_m' = -.0190$
$C_b' = .158$

$x'_{cp} = 30.1$
$y'_{cp} = 42.2$

(h) $M = 0.96$ $\alpha = 5.2^{\circ}$
$C_{N_A} = 0.36$ $\delta_{a_L} = 0.6^{\circ}$ up

Orifice	Row 1	2	3	4	5
1	1.266	1.485	1.558	1.576	1.202
2	.870	1.270	1.234	1.343	1.119
3	.755	1.073	1.101	1.215	.857
4	.710	1.060	.975	1.102	.452
5	.539	.509	.748	.948	.390
6	.464	.416	.700	.627	.352
7	.406	.382	.433	.627	.377
8	.364	.396	.522	.720	.224
9	.410	.450	.430	.498	.081
10	.432	.477	.496	.475	-.022
11	.362	.417	.508	.352	-.027
12	.319	.429	.318	.250	-.038
13	.265	.180	.280	.131	-.085
14	.370	.294	.290	.166	-.022
15	.249	.247	.130	-.030	-.055
16	.331	.205	.075	-.087	
17	.268	.306	.118	-.069	
18	.177	.261	.165	-.071	
19	-.106	-.075	-.017	-.066	
c_n	0.411	0.463	0.482	0.454	0.359
c_m	-.0520	-.0443	-.0345	.0038	.0101

$C_N' = 0.431$
$C_m' = -.0265$
$C_b' = .182$

$x'_{cp} = 31.2$
$y'_{cp} = 42.3$

TABLE X.- Continued.

$[M \approx 0.96]$

(i) $M = 0.96$ $\alpha = 5.6^\circ$
$C_{N_A} = 0.40$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row 1	2	3	4	5
1	1.351	1.539	1.629	1.633	1.258
2	.943	1.348	1.500	1.407	1.182
3	.805	1.143	1.144	1.279	.907
4	.792	1.131	1.039	1.159	.495
5	.609	.594	.811	1.010	.433
6	.542	.488	.797	.684	.400
7	.462	.424	.639	.670	.415
8	.406	.432	.606	.778	.331
9	.466	.471	.490	.589	.231
10	.437	.509	.528	.545	-.005
11	.418	.462	.541	.408	.000
12	.298	.440	.351	.288	-.005
13	.309	.191	.307	.163	-.069
14	.408	.316	.330	.176	.011
15	.270	.279	.146	-.028	-.083
16	.336	.215	.129	-.070	
17	.302	.333	.129	-.053	
18	.218	.315	.171	-.060	
19	-.095	-.075	-.028	-.066	
c_n	0.449	0.500	0.532	0.499	0.411
c_m	-.0552	-.0488	-.0405	.0019	.0009

$C_N' = 0.473$ $x'_{cp} = 31.8$
$C_m' = -.0319$ $y'_{cp} = 42.7$
$C_b' = .202$

(j) $M = 0.96$ $\alpha = 6.2^\circ$
$C_{N_A} = 0.44$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row 1	2	3	4	5
1	1.519	1.616	1.696	1.693	1.319
2	1.064	1.408	1.392	1.482	1.221
3	.908	1.253	1.241	1.340	.954
4	.864	1.178	1.114	1.265	.577
5	.692	.733	.885	1.084	.464
6	.603	.580	.878	.738	.457
7	.545	.508	.751	.746	.469
8	.496	.488	.785	.826	.368
9	.521	.524	.560	.680	.305
10	.488	.562	.570	.738	.140
11	.483	.482	.588	.511	169
12	.349	.466	.393	.319	.076
13	.342	.261	.344	.201	-.037
14	.423	.326	.404	.213	.065
15	.307	.294	.173	-.011	-.055
16	.373	.273	.182	-.038	
17	.329	.364	.166	-.037	
18	.285	.352	.191	-.033	
19	-.079	-.043	-.045	-.060	
c_n	0.508	0.552	0.597	0.566	0.474
c_m	-.0634	-.0558	-.0502	-.0128	-.0188

$C_N' = 0.530$ $x'_{cp} = 32.7$
$C_m' = -.0411$ $y'_{cp} = 42.9$
$C_b' = .228$

TABLE X.- Continued.

$\left[M \approx 0.96\right]$

(k) $M = 0.96$ $\alpha = 6.8^\circ$
$C_{N_A} = 0.50$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.622	1.714	1.771	1.781	1.399
2	1.168	1.503	1.446	1.543	1.300
3	.995	1.348	1.314	1.413	1.006
4	.969	1.238	1.194	1.311	.647
5	.784	.898	.963	1.155	.541
6	.647	.682	.936	.796	.500
7	.616	.580	.838	.839	.514
8	.553	.554	.905	.907	.390
9	.584	.601	.643	.741	.370
10	.530	.607	.624	.809	.189
11	.546	.533	.622	.716	.257
12	.387	.489	.426	.378	.191
13	.381	.328	.361	.239	.111
14	.451	.349	.420	.214	.108
15	.339	.322	.222	.050	
16	.374	.289	.193	-.032	
17	.363	.413	.226	.005	
18	.312	.407	.208	-.044	
19	-.058	-.021	-.028	-.061	
c_n	0.558	0.610	0.651	0.621	0.540
c_m	-.0682	-.0624	-.0563	-.0200	-.0365

$C_N' = 0.585$ $x'_{cp} = 33.2$
$C_m' = -.0481$ $y'_{cp} = 43.0$
$C_b' = .252$

(l) $M = 0.96$ $\alpha = 7.5^\circ$
$C_{N_A} = 0.56$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.733	1.793	1.854	1.892	1.501
2	1.338	1.578	1.536	1.632	1.374
3	1.104	1.450	1.410	1.516	1.101
4	1.068	1.369	1.297	1.415	.759
5	.878	1.091	1.028	1.228	.607
6	.733	.784	1.042	.890	.585
7	.702	.666	.912	.926	.570
8	.646	.642	1.012	.975	.445
9	.675	.657	.841	.802	.409
10	.574	.679	.701	.882	.228
11	.581	.586	.683	.801	.297
12	.424	.534	.481	.593	.247
13	.406	.394	.432	.327	.233
14	.479	.360	.456	.262	.260
15	.351	.355	.304	.067	.183
16	.423	.342	.236	.016	
17	.403	.468	.270	.005	
18	.344	.441	.283	.000	
19	-.021	.011	-.034	-.055	
c_n	0.620	0.679	0.729	0.702	0.618
c_m	-.0742	-.0705	-.0698	-.0357	-.0555

$C_N' = 0.656$ $x'_{cp} = 34.0$
$C_m' = -.0591$ $y'_{cp} = 43.3$
$C_b' = .284$

TABLE X.- Continued.

[M ≈ 0.96]

(m) $M = 0.95$ $\alpha = 8.1^{\circ}$
$C_{N_A} = 0.62$ $\delta_{a_L} = 0.8^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.856	1.890	1.941	1.937	1.573
2	1.396	1.671	1.626	1.727	1.465
3	1.195	1.543	1.503	1.588	1.199
4	1.141	1.433	1.381	1.516	.843
5	.974	1.182	1.117	1.345	.698
6	.836	.918	1.131	.987	.657
7	.755	.769	1.024	.994	.639
8	.727	.732	1.102	1.074	.490
9	.747	.726	.971	.899	.454
10	.639	.742	.785	.940	.262
11	.662	.645	.752	.888	.309
12	.495	.569	.522	.665	.292
13	.476	.451	.499	.526	.272
14	.546	.406	.509	.323	.305
15	.422	.378	.350	.112	.234
16	.468	.376	.291	.055	
17	.428	.503	.304	.065	
18	.325	.487	.290	.000	
19	-.005	.005	-.062	-.072	
c_n	0.685	0.742	0.797	0.776	0.682
c_m	-.0841	-.0789	-.0798	-.0487	-.0654

$C_N' = 0.720$ $x'_{cp} = 34.5$
$C_m' = -.0687$ $y'_{cp} = 43.4$
$C_b' = .312$

(n) $M = 0.95$ $\alpha = 8.6^{\circ}$
$C_{N_A} = 0.66$ $\delta_{a_L} = 0.8^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.931	1.942	2.009	2.033	1.611
2	1.442	1.745	1.688	1.759	1.532
3	1.261	1.624	1.549	1.662	1.273
4	1.218	1.501	1.441	1.556	.913
5	1.068	1.263	1.182	1.362	.754
6	.895	1.043	1.210	1.103	.722
7	.813	.842	1.054	1.032	.679
8	.799	.784	1.167	1.134	.523
9	.822	.793	1.023	.939	.488
10	.683	.780	.894	.991	.300
11	.680	.687	.813	.923	.337
12	.528	.614	.566	.694	.292
13	.463	.474	.527	.576	.320
14	.563	.462	.550	.442	.333
15	.439	.401	.389	.202	.285
16	.485	.403	.324	.093	
17	.440	.547	.315	.086	
18	.310	.527	.290	.017	
19	.016	.016	-.023	-.028	
c_n	0.726	0.796	0.852	0.831	0.728
c_m	-.0863	-.0868	-.0886	-.0599	-.0736

$C_N' = 0.771$ $x'_{cp} = 34.9$
$C_m' = -.0763$ $y'_{cp} = 43.4$
$C_b' = .334$

TABLE X.- Continued.

$[M \approx 0.96]$

(o) $M = 0.95$ $\quad \alpha = 9.3^\circ$
$C_{N_A} = 0.71$ $\quad \delta_{a_L} = 0.8^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.962	2.033	2.069	2.086	1.704
2	1.530	1.825	1.770	1.854	1.616
3	1.367	1.696	1.628	1.748	1.336
4	1.291	1.623	1.505	1.643	.998
5	1.151	1.333	1.237	1.452	.806
6	.970	1.208	1.251	1.129	.768
7	.888	.953	1.138	1.122	.731
8	.874	.861	1.236	1.190	.596
9	.882	.874	1.110	1.020	.544
10	.733	.857	1.034	1.040	.346
11	.740	.747	.888	.977	.389
12	.578	.667	.646	.745	.349
13	.499	.520	.600	.645	.370
14	.620	.519	.593	.515	.389
15	.462	.424	.451	.326	.337
16	.525	.458	.375	.208	
17	.385	.598	.338	.146	
18	.279	.573	.254	.022	
19	.038	.044	.000	−.011	
c_n	0.774	0.869	0.917	0.893	0.789
c_m	−.0920	−.0972	−.1004	−.0740	−.0858

$C_N' = 0.833$ $\quad x'_{cp} = 35.4$
$C_m' = -.0866$ $\quad y'_{cp} = 43.3$
$C_b' = .361$

(p) $M = 0.96$ $\quad \alpha = 10.3^\circ$
$C_{N_A} = 0.76$ $\quad \delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.017	2.066	2.106	2.150	1.745
2	1.615	1.891	1.806	1.899	1.619
3	1.489	1.787	1.694	1.782	1.349
4	1.401	1.675	1.567	1.689	1.048
5	1.285	1.408	1.292	1.514	.897
6	1.083	1.303	1.319	1.231	.921
7	1.010	1.068	1.241	1.204	.804
8	.983	.967	1.285	1.237	.629
9	.953	.936	1.160	1.067	.564
10	.817	.899	1.116	1.101	.435
11	.776	.823	1.024	1.048	.451
12	.616	.704	.725	.810	.391
13	.549	.541	.644	.704	.462
14	.637	.561	.628	.624	.457
15	.494	.437	.495	.419	.397
16	.529	.485	.447	.356	
17	.521	.637	.354	.236	
18	.515	.597	.267	.145	
19	.125	.158	.088	.086	
c_n	0.855	0.926	0.979	0.970	0.844
c_m	−.1083	−.1051	−.1140	−.0968	−.1004

$C_N' = 0.896$ $\quad x'_{cp} = 36.1$
$C_m' = -.0995$ $\quad y'_{cp} = 43.3$
$C_b' = .388$

TABLE X.- Continued.

[$M \approx 0.96$]

(q) $M = 0.96$ $\alpha = 10.8^\circ$
$C_{N_A} = 0.81$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.058	2.133	2.161	2.205	1.819
2	1.712	1.944	1.882	1.961	1.671
3	1.540	1.819	1.712	1.814	1.406
4	1.498	1.728	1.640	1.770	1.086
5	1.328	1.473	1.307	1.578	.972
6	1.146	1.368	1.403	1.267	.847
7	1.148	1.214	1.263	1.253	.863
8	1.107	1.051	1.403	1.259	.659
9	1.003	.995	1.216	1.143	.625
10	.858	.974	1.170	1.119	.449
11	.825	.848	1.100	1.099	.503
12	.666	.746	.789	.873	.437
13	.577	.588	.723	.763	.465
14	.678	.640	.682	.633	.524
15	.539	.482	.551	.471	.415
16	.554	.529	.471	.379	
17	.551	.667	.319	.317	
18	.555	.633	.284	.184	
19	.167	.207	.121	.147	
c_n	0.914	0.986	1.037	1.013	0.895
c_m	-.1164	-.1164	-.1239	-.1051	-.1091

$C_N' = 0.949$ $x'_{cp} = 36.4$
$C_m' = -.1084$ $y'_{cp} = 43.1$
$C_b' = .409$

(r) $M = 0.96$ $\alpha = 11.2^\circ$
$C_{N_A} = 0.85$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.142	2.208	2.268	2.284	1.871
2	1.800	2.041	1.929	2.030	1.763
3	1.645	1.914	1.820	1.923	1.503
4	1.584	1.807	1.697	1.830	1.158
5	1.416	1.549	1.442	1.627	1.055
6	1.267	1.422	1.428	1.375	.905
7	1.156	1.358	1.358	1.305	.897
8	1.114	1.137	1.408	1.383	.722
9	1.078	1.073	1.281	1.190	.671
10	.931	1.019	1.244	1.199	.514
11	.880	.945	1.180	1.135	.537
12	.727	.821	.880	.922	.470
13	.623	.645	.781	.789	.535
14	.719	.654	.751	.690	.574
15	.573	.483	.613	.516	.465
16	.593	.542	.450	.449	
17	.592	.725	.328	.369	
18	.572	.701	.320	.252	
19	.185	.225	.212	.182	
c_n	0.969	1.047	1.094	1.081	0.955
c_m	-.1247	-.1256	-.1350	-.1176	-.1203

$C_N' = 1.008$ $x'_{cp} = 36.7$
$C_m' = -.1183$ $y'_{cp} = 43.2$
$C_b' = .436$

[redacted]

TABLE X.- Continued.

$[M \approx 0.96]$

(s) $M \approx 0.95$ $\quad \alpha = 12.0^\circ$
$C_{N_A} \approx 0.91$ $\quad \delta_{a_L} \approx 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.228	2.265	2.335	2.336	1.968
2	1.883	2.118	2.022	2.107	1.822
3	1.746	1.975	1.888	1.999	1.545
4	1.703	1.897	1.763	1.906	1.243
5	1.506	1.605	1.518	1.726	1.136
6	1.326	1.550	1.511	1.429	.992
7	1.243	1.441	1.441	1.408	.970
8	1.200	1.225	1.504	1.438	.786
9	1.184	1.154	1.353	1.272	.713
10	1.007	1.115	1.326	1.275	.554
11	.954	1.025	1.245	1.189	.566
12	.769	.915	1.001	1.015	.510
13	.670	.703	.906	.849	.590
14	.762	.740	.705	.737	.576
15	.618	.517	.473	.535	.516
16	.628	.597	.500	.417	
17	.611	.772	.415	.385	
18	.501	.744	.448	.272	
19	.198	.218	.328	.235	
c_n	1.028	1.123	1.162	1.137	1.017
c_m	-.1293	-.1403	-.1472	-.1256	-.1309

$C_N' = 1.072$ $\quad x'_{cp} = 37.0$
$C_m' = -.1286$ $\quad y'_{cp} = 43.1$
$C_b' = .462$

(t) $M = 0.96$ $\quad \alpha = 11.9^\circ$
$C_{N_A} = 0.98$ $\quad \delta_{a_L} = 0.7^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.272	2.288	2.327	2.316	1.981
2	1.946	2.153	2.069	2.126	1.855
3	1.830	2.026	1.922	2.023	1.587
4	1.729	1.946	1.827	1.937	1.257
5	1.559	1.647	1.557	1.752	1.191
6	1.374	1.580	1.552	1.478	1.024
7	1.269	1.493	1.485	1.447	.982
8	1.232	1.254	1.450	1.477	.823
9	1.202	1.201	1.388	1.309	.754
10	1.051	1.128	1.336	1.290	.585
11	.971	1.061	1.272	1.221	.585
12	.829	.894	1.062	1.049	.526
13	.675	.743	.963	.907	.636
14	.790	.725	.711	.759	.630
15	.630	.572	.538	.571	.574
16	.662	.596	.571	.480	
17	.663	.802	.510	.426	
18	.649	.768	.505	.350	
19	.223	.294	.403	.269	
c_n	1.069	1.146	1.194	1.173	1.050
c_m	-.1415	-.1428	-.1579	-.1365	-.1394

$C_N' = 1.102$ $\quad x'_{cp} = 37.3$
$C_m' = -.1357$ $\quad y'_{cp} = 43.1$
$C_b' = .475$

[redacted]

[redacted]

[redacted]

TABLE X.- Concluded.

[$M \approx 0.96$]

(u) $M = 0.96$ $\alpha = 13.6^\circ$
$C_{N_A} = 1.03$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.315	2.325	2.371	2.360	2.032
2	2.041	2.238	2.150	2.227	1.952
3	1.927	2.088	2.016	2.091	1.681
4	1.835	2.023	1.914	2.021	1.348
5	1.673	1.742	1.644	1.847	1.284
6	1.471	1.659	1.639	1.565	1.108
7	1.353	1.543	1.551	1.544	1.039
8	1.321	1.390	1.616	1.561	.878
9	1.285	1.294	1.458	1.390	.821
10	1.139	1.224	1.417	1.276	.638
11	1.017	1.136	1.106	1.026	.633
12	.875	.971	.837	.855	.565
13	.723	.760	.774	.765	.672
14	.837	.684	.719	.577	.654
15	.609	.465	.569	.397	.488
16	.520	.544	.643	.383	
17	.476	.722	.614	.447	
18	.423	.640	.657	.467	
19	.201	.269	.526	.436	
c_n	1.102	1.185	1.291	1.160	1.113
c_m	-.1292	-.1363	-.1577	-.1152	-.1459

$C_N' = 1.129$ $x'_{cp} = 36.2$
$C_m' = -.1270$ $y'_{cp} = 43.0$
$C_b' = .485$

[redacted]

TABLE XI

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 0.99]$

(a) $M = 1.00$ $C_{N_A} = 0.04$ $\alpha = 3.0^\circ$ $\delta_{a_L} \doteq 0^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.315	0.269	0.911	1.003	0.655
2	.193	.268	.168	.285	.180
3	.182	.275	.120	.320	-.050
4	.144	.221	.100	.313	.000
5	.093	.094	.049	.178	.048
6	.106	.076	.074	.006	.033
7	.112	.069	.120	-.006	.058
8	.062	.064	.241	.185	.024
9	.045	.082	.101	.029	-.010
10	.106	.130	.109	.096	.019
11	.064	.126	.178	.103	-.019
12	.097	.101	.081	.076	-.015
13	.073	.029	.086	.096	-.066
14	.195	.174	.093	.137	-.034
15	.099	.057	.010	-.049	-.093
16	.118	.037	.014	-.091	
17	.079	.090	.134	-.038	
18	.083	.120	.132	-.068	
19	-.038	.048	.015	-.005	
c_n	0.105	0.113	0.131	0.114	0.044
c_m	-.0211	-.0181	-.0138	.0056	.0121

$C_N' = 0.104$ $x'_{cp} = 33.8$
$C_m' = -.0092$ $y'_{cp} = 40.3$
$C_B' = .042$

(b) $M = 1.00$ $C_{N_A} = 0.12$ $\alpha = 3.5^\circ$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.543	0.812	1.076	1.129	0.772
2	.344	.366	.763	.847	.694
3	.279	.341	.287	.682	.093
4	.240	.300	.180	.398	-.046
5	.148	.199	.103	.200	.019
6	.161	.145	.122	.062	.014
7	.148	.124	.162	.050	.058
8	.135	.152	.300	.259	.061
9	.094	.119	.158	.062	.014
10	.169	.195	.187	.123	.066
11	.108	.183	.247	.135	.014
12	.161	.196	.133	.136	.019
13	.136	.053	.090	.134	-.037
14	.226	.191	.158	.183	-.014
15	.126	.080	.000	-.010	-.083
16	.159	.051	.019	-.052	
17	.108	.094	.128	-.023	
18	.119	.129	.145	-.010	
19	-.088	.066	.034	-.029	
c_n	0.164	0.183	0.201	0.183	0.091
c_m	-.0282	-.0211	-.0170	-.0014	.0116

$C_N' = 0.168$ $x'_{cp} = 32.3$
$C_m' = -.0122$ $y'_{cp} = 40.9$
$C_b' = .069$

[redacted]

TABLE XI.- Continued.

$[M \approx 0.99]$

(c) $M = 0.99$ $\alpha = 4.4^{\circ}$
$C_{N_A} = 0.20$ $\delta_{a_L} = 0.2^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.785	1.082	1.228	1.287	0.930
2	.533	.908	.947	1.001	.796
3	.470	.550	.784	.934	.527
4	.350	.392	.650	.757	.184
5	.282	.266	.182	.697	.090
6	.259	.239	.182	.167	.009
7	.215	.192	.243	.222	.010
8	.215	.214	.342	.284	.042
9	.187	.195	.229	.114	.089
10	.246	.299	.313	.189	.099
11	.210	.276	.369	.260	.048
12	.211	.309	.255	.196	.048
13	.186	.086	.141	.105	- .014
14	.273	.229	.206	.187	.009
15	.181	.160	.024	.000	- .053
16	.215	.101	.000	- .052	
17	.181	.146	.108	- .009	
18	.178	.152	.140	.000	
19	- .093	.066	.029	- .043	
c_n	0.245	0.277	0.305	0.265	0.179
c_m	-.0386	-.0293	-.0225	.0032	.0139

$C_N' = 0.255$
$C_m' = -.0169$
$C_b' = .106$

$x'_{cp} = 31.6$
$y'_{cp} = 41.5$

(d) $M = 0.99$ $\alpha = 5.0^{\circ}$
$C_{N_A} = 0.25$ $\delta_{a_L} = 0.2^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.870	1.174	1.319	1.334	1.020
2	.640	1.030	1.028	1.130	.923
3	.567	.894	.925	1.019	.632
4	.491	.541	.741	.862	.294
5	.355	.334	.315	.762	.251
6	.338	.282	.279	.450	.198
7	.275	.247	.273	.382	.033
8	.257	.264	.371	.390	.103
9	.260	.251	.262	.161	.070
10	.314	.355	.410	.354	.085
11	.273	.329	.430	.298	.019
12	.247	.342	.274	.196	.010
13	.224	.129	.216	.143	- .028
14	.305	.248	.210	.187	.019
15	.218	.197	.081	.010	- .034
16	.247	.133	.005	- .047	
17	.215	.183	.113	- .005	
18	.214	.171	.126	- .029	
19	- .069	.070	.034	- .048	
c_n	0.304	0.330	0.352	0.337	0.234
c_m	-.0457	-.0341	-.0262	.0012	.0154

$C_N' = 0.311$
$C_m' = -.0208$
$C_b' = .131$

$x'_{cp} = 31.7$
$y'_{cp} = 42.1$

TABLE XI.- Continued.

$[M \approx 0.99]$

(e) $M = 0.99$ $\quad \alpha = 5.3^\circ$

$C_{N_A} = 0.31$ $\quad \delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.101	1.312	1.432	1.453	1.101
2	.730	1.178	1.118	1.210	.992
3	.692	.989	1.021	1.106	.737
4	.617	.948	.851	.997	.380
5	.476	.450	.656	.869	.340
6	.429	.364	.542	.527	.258
7	.361	.340	.385	.558	.324
8	.325	.328	.449	.619	.119
9	.352	.368	.379	.288	.065
10	.389	.405	.459	.446	.047
11	.364	.419	.479	.341	-.005
12	.279	.397	.306	.220	-.014
13	.261	.174	.273	.164	-.036
14	.328	.276	.250	.198	.005
15	.251	.226	.131	.010	-.048
16	.276	.167	.083	-.042	
17	.259	.268	.120	-.009	
18	.242	.229	.142	-.028	
19	-.041	.060	.014	-.071	
c_n	0.372	0.416	0.432	0.410	0.314
c_m	-.0518	-.0404	-.0335	-.0023	.0082

$C_N' = 0.387$ $\quad x'_{cp} = 31.8$

$C_m' = -.0262$ $\quad y'_{cp} = 42.2$

$C_b' = .163$

(f) $M = 0.99$ $\quad \alpha = 5.9^\circ$

$C_{N_A} = 0.37$ $\quad \delta_{a_L} = 0.3^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.243	1.400	1.500	1.521	1.174
2	.836	1.239	1.194	1.285	1.053
3	.741	1.057	1.082	1.180	.805
4	.707	1.022	.931	1.085	.444
5	.549	.529	.740	.929	.391
6	.508	.432	.686	.582	.321
7	.428	.383	.557	.613	.357
8	.392	.384	.492	.688	.299
9	.401	.438	.441	.503	.139
10	.434	.448	.505	.474	.056
11	.407	.450	.517	.374	-.005
12	.315	.402	.334	.266	-.033
13	.282	.207	.283	.187	-.018
14	.365	.277	.310	.216	.000
15	.274	.245	.140	.014	-.029
16	.294	.204	.129	-.042	
17	.279	.295	.120	-.009	
18	.264	.290	.151	-.009	
19	-.036	.060	.014	-.071	
c_n	0.423	0.459	0.484	0.460	0.367
c_m	-.0563	-.0458	-.0393	-.0070	.0001

$C_N' = 0.434$ $\quad x'_{cp} = 32.3$

$C_m' = -.0315$ $\quad y'_{cp} = 42.4$

$C_b' = .184$

TABLE XI.- Continued.

[$M \approx 0.99$]

(g) $M = 0.99$ $\alpha = 6.5^\circ$
$C_{N_A} = 0.41$ $\delta_{a_L} = 0.3^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.418	1.515	1.590	1.623	1.269
2	.933	1.341	1.312	1.369	1.135
3	.841	1.213	1.166	1.269	.875
4	.805	1.081	1.031	1.169	.518
5	.647	.677	.832	1.033	.458
6	.553	.514	.796	.663	.413
7	.508	.452	.724	.694	.406
8	.454	.453	.655	.758	.337
9	.460	.496	.513	.602	.278
10	.462	.515	.553	.680	.168
11	.466	.469	.537	.466	.137
12	.334	.460	.377	.294	.047
13	.329	.255	.316	.216	-.018
14	.385	.320	.358	.221	.042
15	.298	.259	.150	.029	-.043
16	.323	.272	.176	-.033	
17	.323	.320	.181	.000	
18	.301	.342	.193	-.009	
19	-.018	.051	-.005	-.071	
c_n	0.474	0.521	0.553	0.529	0.438
c_m	-.0610	-.0551	-.0474	-.0140	-.0155

$C_N' = 0.496$
$C_m' = -.0400$
$C_b' = .212$

$x'_{cp} = 33.1$
$y'_{cp} = 42.8$

(h) $M = 0.99$ $\alpha = 6.8^\circ$
$C_{N_A} = 0.46$ $\delta_{a_L} = 0.3^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.544	1.582	1.655	1.700	1.344
2	1.073	1.422	1.396	1.446	1.198
3	.946	1.288	1.242	1.363	.938
4	.883	1.144	1.113	1.246	.614
5	.709	.831	.899	1.107	.501
6	.633	.615	.869	.744	.455
7	.563	.538	.811	.787	.468
8	.521	.516	.831	.822	.384
9	.529	.544	.598	.678	.302
10	.522	.577	.591	.742	.229
11	.511	.501	.608	.672	.232
12	.384	.484	.397	.336	.175
13	.338	.302	.349	.259	.082
14	.422	.339	.372	.240	.094
15	.307	.288	.206	.043	-.010
16	.351	.296	.167	-.014	
17	.343	.357	.228	.014	
18	.315	.367	.221	.014	
19	.005	.060	-.014	-.076	
c_n	0.528	0.574	0.610	0.587	0.501
c_m	-.0663	-.0605	-.0530	-.0218	-.0308

$C_N' = 0.550$
$C_m' = -.0465$
$C_b' = .236$

$x'_{cp} = 33.5$
$y'_{cp} = 43.0$

TABLE XI.- Continued.

$[M \approx 0.99]$

(i) $M = 0.99$ $\alpha = 7.4^{\circ}$
$C_{N_A} = 0.52$ $\delta_{a_L} = 0.4^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.660	1.704	1.752	1.797	1.415
2	1.240	1.519	1.477	1.525	1.304
3	1.072	1.390	1.338	1.441	1.045
4	.982	1.265	1.202	1.343	.703
5	.820	1.043	.992	1.183	.577
6	.720	.716	.968	.856	.520
7	.675	.638	.888	.863	.541
8	.608	.587	.931	.931	.413
9	.609	.630	.761	.770	.363
10	.564	.639	.667	.824	.268
11	.546	.551	.662	.774	.261
12	.413	.514	.449	.550	.223
13	.385	.370	.406	.335	.220
14	.456	.369	.417	.260	.253
15	.345	.326	.263	.091	.120
16	.375	.328	.223	.023	
17	.383	.405	.266	.060	
18	.357	.415	.273	.019	
19	.028	.079	- .024	- .072	
c_n	0.590	0.643	0.683	0.670	0.579
c_m	.0721	.0678	.0652	.0363	.0498

$C_N' = 0.621$
$C_m' = -.0567$
$C_b' = .269$

$x'_{cp} = 34.1$
$y'_{cp} = 43.3$

(j) $M = 0.98$ $\alpha = 8.1^{\circ}$
$C_{N_A} = 0.58$ $\delta_{a_L} = 0.5^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.756	1.766	1.811	1.843	1.479
2	1.330	1.608	1.556	1.621	1.380
3	1.166	1.485	1.390	1.524	1.103
4	1.074	1.336	1.297	1.421	.791
5	.926	1.143	1.042	1.263	.640
6	.789	.836	1.066	.919	.595
7	.749	.719	.951	.932	.599
8	.676	.663	1.029	.995	.455
9	.678	.697	.905	.837	.392
10	.606	.693	.747	.873	.296
11	.605	.605	.710	.843	.286
12	.454	.548	.511	.611	.261
13	.411	.399	.454	.478	.262
14	.508	.384	.452	.320	.292
15	.392	.345	.325	.121	.217
16	.408	.366	.251	.066	
17	.398	.443	.295	.079	
18	.393	.439	.306	.043	
19	.055	.107	- .015	- .062	
c_n	0.646	0.698	0.751	0.730	0.634
c_m	-.0800	-.0739	-.0756	-.0479	-.0604

$C_N' = 0.677$
$C_m' = -.0649$
$C_b' = .293$

$x'_{cp} = 34.6$
$y'_{cp} = 43.3$

TABLE XI.- Continued.

[M ≈ 0.99]

(k) $M = 0.98$ $\alpha = 8.6^\circ$
$C_{N_A} = 0.62$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.850	1.844	1.880	1.913	1.559
2	1.393	1.676	1.626	1.665	1.422
3	1.238	1.546	1.470	1.561	1.150
4	1.156	1.409	1.357	1.490	.845
5	.984	1.209	1.101	1.305	.713
6	.859	.946	1.113	1.003	.652
7	.777	.790	1.017	.997	.639
8	.746	.722	1.070	1.037	.504
9	.730	.752	.965	.888	.422
10	.658	.728	.825	.933	.312
11	.632	.643	.755	.885	.320
12	.493	.569	.537	.660	.286
13	.434	.443	.498	.551	.300
14	.543	.418	.485	.406	.326
15	.412	.356	.360	.174	.261
16	.438	.385	.294	.080	
17	.419	.473	.315	.107	
18	.431	.474	.321	.038	
19	.078	.131	-.005	-.053	
c_n	0.694	0.746	0.797	0.780	0.680
c_m	-.0867	-.0792	-.0832	-.0567	-.0686

$C_N' = 0.724$
$C_m' = -.0713$
$C_b' = .313$

$x'_{cp} = 34.9$
$y'_{cp} = 43.3$

(l) $M = 0.98$ $\alpha = 9.1^\circ$
$C_{N_A} = 0.66$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.920	1.917	1.975	2.014	1.625
2	1.478	1.787	1.733	1.758	1.518
3	1.333	1.638	1.542	1.658	1.238
4	1.267	1.550	1.459	1.576	.924
5	1.088	1.291	1.186	1.398	.797
6	.962	1.133	1.211	1.070	.715
7	.853	.879	1.110	1.089	.704
8	.859	.825	1.161	1.156	.542
9	.817	.818	1.038	.954	.478
10	.707	.779	.984	.995	.368
11	.678	.695	.821	.938	.372
12	.526	.623	.600	.724	.318
13	.490	.467	.541	.605	.341
14	.554	.471	.534	.504	.391
15	.435	.393	.378	.304	.308
16	.466	.431	.378	.162	
17	.458	.530	.351	.156	
18	.445	.508	.343	.043	
19	.098	.166	.005	-.010	
c_n	0.753	0.819	0.877	0.854	0.744
c_m	-.0920	-.0878	-.0963	-.0707	-.0803

$C_N' = 0.793$
$C_m' = -.0810$
$C_b' = .343$

$x'_{cp} = 35.2$
$y'_{cp} = 43.3$

TABLE XI.- Continued.

[M ≈ 0.99]

(m) $M = 0.99$ $\alpha = 9.4^\circ$
$C_{N_A} = 0.66$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.893	1.901	1.946	1.954	1.611
2	1.449	1.732	1.673	1.735	1.475
3	1.307	1.617	1.554	1.637	1.202
4	1.243	1.519	1.412	1.563	.915
5	1.098	1.266	1.170	1.383	.764
6	.909	1.113	1.170	1.056	.711
7	.875	.871	1.095	1.075	.687
8	.826	.818	1.134	1.116	.538
9	.812	.807	1.023	.927	.481
10	.712	.784	.979	.981	.354
11	.691	.705	.815	.934	.387
12	.527	.618	.604	.716	.325
13	.466	.451	.533	.600	.355
14	.568	.479	.539	.525	.373
15	.425	.379	.392	.325	.319
16	.464	.412	.360	.210	
17	.471	.527	.338	.175	
18	.443	.510	.344	.071	
19	.128	.143	.024	-.005	
c_n	0.746	0.809	0.863	0.848	0.733
c_m	-.0928	-.0875	-.0970	-.0747	-.0807

$C_N' = 0.784$
$C_m' = -.0820$
$C_b' = .340$
$x'_{cp} = 35.5$
$y'_{cp} = 43.3$

(n) $M = 0.99$ $\alpha = 10.0^\circ$
$C_{N_A} = 0.72$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.961	1.989	2.027	2.053	1.688
2	1.547	1.829	1.766	1.808	1.533
3	1.432	1.719	1.651	1.709	1.284
4	1.334	1.603	1.501	1.623	.981
5	1.214	1.360	1.256	1.470	.872
6	1.024	1.257	1.232	1.136	.748
7	.978	1.011	1.213	1.149	.777
8	.917	.904	1.214	1.180	.584
9	.900	.878	1.100	1.022	.540
10	.771	.855	1.083	1.062	.380
11	.753	.775	.938	.988	.432
12	.576	.655	.669	.776	.346
13	.519	.516	.602	.660	.394
14	.600	.529	.581	.574	.427
15	.483	.418	.456	.399	.370
16	.500	.451	.422	.314	
17	.508	.581	.369	.232	
18	.464	.551	.319	.104	
19	.142	.181	.058	.043	
c_n	0.811	0.880	0.933	0.918	0.800
c_m	-.1011	-.0973	-.1085	-.0888	-.0926

$C_N' = 0.851$
$C_m' = -.0923$
$C_b' = .368$
$x'_{cp} = 35.9$
$y'_{cp} = 43.3$

TABLE XI.- Continued.

[$M \approx 0.99$]

(o) $M = 0.98$ $\alpha = 10.4^\circ$
$C_{N_A} = 0.77$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.016	2.030	2.082	2.077	1.711
2	1.620	1.902	1.803	1.869	1.611
3	1.503	1.767	1.693	1.739	1.343
4	1.422	1.669	1.548	1.697	1.038
5	1.291	1.389	1.295	1.498	.903
6	1.082	1.323	1.289	1.213	.805
7	1.029	1.131	1.242	1.177	.793
8	.980	.969	1.266	1.246	.618
9	.961	.933	1.141	1.081	.579
10	.818	.895	1.123	1.079	.428
11	.780	.835	1.020	1.044	.452
12	.618	.713	.736	.824	.385
13	.541	.536	.650	.700	.446
14	.630	.578	.626	.608	.452
15	.484	.448	.490	.425	.385
16	.529	.475	.466	.372	
17	.529	.616	.351	.288	
18	.493	.572	.283	.162	
19	.179	.205	.097	.086	
c_n	0.857	0.929	0.976	0.966	0.838
c_m	-.1070	-.1053	-.1161	-.0989	-.0996

$C_N' = 0.896$ $x'_{cp} = 36.1$
$C_m' = -.0998$ $y'_{cp} = 43.2$
$C_b' = .387$

(p) $M = 0.98$ $\alpha = 11.0^\circ$
$C_{N_A} = 0.81$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.071	2.089	2.131	2.157	1.795
2	1.693	1.950	1.852	1.911	1.632
3	1.567	1.833	1.758	1.798	1.375
4	1.514	1.710	1.595	1.750	1.095
5	1.354	1.471	1.369	1.579	.970
6	1.156	1.362	1.351	1.245	.842
7	1.072	1.261	1.323	1.258	.836
8	1.035	1.013	1.328	1.291	.663
9	1.021	.995	1.205	1.111	.601
10	.855	.943	1.176	1.137	.440
11	.808	.862	1.107	1.074	.479
12	.649	.760	.797	.866	.406
13	.582	.578	.696	.732	.472
14	.657	.624	.678	.631	.487
15	.529	.455	.531	.427	.416
16	.551	.515	.478	.412	
17	.561	.643	.329	.346	
18	.523	.608	.294	.211	
19	.180	.216	.151	.120	
c_n	0.903	0.975	1.027	1.009	0.879
c_m	-.1129	-.1136	-.1251	-.1069	-.1057

$C_N' = 0.940$ $x'_{cp} = 36.4$
$C_m' = -.1071$ $y'_{cp} = 43.2$
$C_b' = .406$

TABLE XI.- Concluded.

[$M \approx 0.99$]

(q) $M = 0.98$ $\alpha = 11.4^\circ$
$C_{N_A} = 0.86$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.128	2.143	2.181	2.201	1.808
2	1.789	1.988	1.891	1.949	1.713
3	1.624	1.889	1.809	1.861	1.438
4	1.579	1.779	1.657	1.776	1.137
5	1.434	1.509	1.413	1.598	1.032
6	1.218	1.431	1.400	1.307	.888
7	1.134	1.336	1.343	1.283	.880
8	1.085	1.095	1.389	1.342	.706
9	1.071	1.048	1.249	1.154	.653
10	.910	1.000	1.219	1.180	.473
11	.872	.902	1.140	1.094	.513
12	.681	.784	.854	.923	.445
13	.591	.616	.749	.761	.509
14	.685	.648	.735	.673	.544
15	.538	.479	.588	.490	.450
16	.575	.524	.454	.450	
17	.581	.680	.334	.369	
18	.560	.637	.289	.268	
19	.217	.235	.225	.178	
c_n	0.949	1.020	1.068	1.053	0.926
c_m	-.1189	-.1196	-.1314	-.1172	-.1159

$C_N' = 0.982$ $x'_{cp} = 36.6$
$C_m' = -.1140$ $y'_{cp} = 43.2$
$C_b' = .424$

(r) $M = 0.98$ $\alpha = 12.3^\circ$
$C_{N_A} = 0.92$ $\delta_{a_L} = 0.7^\circ$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.193	2.217	2.252	2.229	1.895
2	1.884	2.076	1.968	2.038	1.774
3	1.734	1.958	1.890	1.936	1.523
4	1.701	1.867	1.737	1.871	1.219
5	1.524	1.600	1.489	1.700	1.120
6	1.307	1.511	1.465	1.391	.968
7	1.215	1.401	1.433	1.366	.939
8	1.172	1.204	1.466	1.414	.767
9	1.157	1.131	1.329	1.229	.700
10	.980	1.079	1.293	1.236	.543
11	.927	1.016	1.215	1.174	.564
12	.746	.857	.993	.995	.481
13	.650	.697	.877	.848	.582
14	.723	.686	.714	.715	.577
15	.588	.543	.473	.538	.512
16	.625	.551	.505	.457	
17	.620	.751	.422	.400	
18	.618	.708	.446	.309	
19	.252	.246	.344	.228	
c_n	1.020	1.093	1.141	1.116	0.994
c_m	-.1303	-.1331	-.1470	-.1276	-.1287

$C_N' = 1.050$ $x'_{cp} = 37.0$
$C_m' = -.1260$ $y'_{cp} = 43.1$
$C_b' = .452$

TABLE XII

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 1.01]$

(a) $M = 1.02$ $\alpha = 2.5^\circ$
$C_{N_A} = 0$ $\delta_{a_L} = 0.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.059	0.103	0.152	0.249	0.068
2	.050	.132	.076	.222	.101
3	.073	.132	.005	.229	-.044
4	.031	.093	-.015	.174	-.025
5	.000	-.024	-.038	.067	-.004
6	.010	-.005	.024	-.088	-.022
7	.010	-.005	.020	-.054	.011
8	-.015	-.005	.178	.085	-.004
9	-.031	.004	.011	-.034	-.030
10	.029	.030	-.026	.037	-.015
11	-.027	.035	.078	.027	-.026
12	.051	.004	.041	-.007	-.015
13	-.010	-.004	-.011	-.015	-.091
14	.148	.117	.059	.107	-.078
15	.059	.041	-.011	-.057	-.088
16	.092	-.025	.015	-.105	
17	.027	.067	.111	-.077	
18	.061	.086	.129	-.079	
19	-.040	.019	.035	.023	
c_n	0.031	0.033	0.045	0.026	-0.017
c_m	-.0137	-.0072	-.0114	.0082	.0104

$C_N' = 0.026$
$C_m' = -.0092$
$C_b' = .009$

$x'_{cp} = 37.1$
$y'_{cp} = 32.8$

(b) $M = 1.02$ $\alpha = 2.4^\circ$
$C_{N_A} = 0.05$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.221	0.209	0.239	0.273	0.068
2	.120	.234	.111	.276	.116
3	.156	.214	.083	.302	-.020
4	.092	.142	.054	.273	-.007
5	.053	.049	.019	.124	.026
6	.068	.049	.062	-.039	.007
7	.063	.049	.083	-.049	.041
8	.039	.045	.197	.144	.011
9	.000	.037	.064	.000	-.007
10	.079	.075	.059	.067	-.015
11	.015	.091	.131	.072	-.030
12	.076	.056	.078	.044	.000
13	.043	.030	.059	.049	-.091
14	.166	.150	.093	.114	-.034
15	.069	.055	.000	-.046	-.099
16	.103	-.004	.026	-.097	
17	.062	.096	.108	-.063	
18	.079	.101	.151	-.106	
19	-.040	.037	.058	.023	
c_n	0.072	0.078	0.089	0.062	-0.000
c_m	-.0174	-.0128	-.0180	.0052	.0072

$C_N' = 0.064$
$C_m' = -.0071$
$C_b' = .023$

$x'_{cp} = 36.1$
$y'_{cp} = 35.9$

TABLE XII.- Continued.

$[M \approx 1.01]$

(c) $M = 1.02$ $\alpha = 3.1^\circ$
$C_{N_A} = 0.10$ $\delta_{a_L} = 0.9^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.512	0.551	0.977	1.076	0.728
2	.294	.324	.506	.804	.643
3	.266	.334	.190	.417	.029
4	.213	.249	.155	.331	-.029
5	.163	.155	.057	.223	-.007
6	.140	.123	.124	.015	.018
7	.125	.121	.122	.039	.052
8	.106	.109	.282	.222	.055
9	.065	.089	.138	.052	.026
10	.139	.167	.161	.111	-.026
11	.096	.164	.223	.132	-.053
12	.129	.145	.115	.106	-.041
13	.106	.056	.089	.108	-.127
14	.228	.172	.137	.073	-.078
15	.127	.070	.007	-.088	-.099
16	.154	.036	.044	-.137	
17	.096	.107	.103	-.066	
18	.118	.130	.154	-.101	
19	-.087	.066	.065	-.004	
c_n	0.145	0.150	0.178	0.139	0.058
c_m	-.0259	-.0196	-.0183	.0142	.0201

$C_N' = 0.136$
$C_m' = -.0080$
$C_b' = .054$

$x'_{cp} = 30.9$
$y'_{cp} = 39.5$

(d) $M = 1.02$ $\alpha = 3.7^\circ$
$C_{N_A} = 0.16$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.697	0.980	1.116	1.215	0.829
2	.432	.629	.846	.935	.762
3	.367	.401	.667	.833	.485
4	.289	.312	.300	.681	-.018
5	.211	.189	.119	.351	-.022
6	.207	.177	.161	.072	-.036
7	.158	.169	.175	.145	.011
8	.178	.168	.315	.276	.048
9	.123	.149	.183	.093	.088
10	.207	.219	.245	.144	.000
11	.141	.230	.311	.158	-.011
12	.193	.208	.177	.150	-.022
13	.145	.086	.107	.119	-.105
14	.261	.205	.171	.084	-.052
15	.149	.140	.000	-.061	-.087
16	.190	.065	.033	-.126	
17	.130	.129	.088	-.048	
18	.143	.141	.146	-.075	
19	-.094	.073	.073	-.015	
c_n	0.203	0.218	0.238	0.201	0.124
c_m	-.0329	-.0235	-.0212	.0145	.0222

$C_N' = 0.198$
$C_m' = -.0106$
$C_b' = .080$

$x'_{cp} = 30.4$
$y'_{cp} = 40.6$

TABLE XII.- Continued.

$[M \approx 1.01]$

(e) $M = 1.02$ $\alpha = 4.1^\circ$
$C_{N_A} = 0.21$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.785	1.097	1.209	1.279	0.916
2	.537	.900	.946	1.009	.848
3	.460	.619	.794	.906	.554
4	.375	.375	.640	.775	.206
5	.288	.242	.185	.674	.100
6	.265	.221	.200	.174	-.007
7	.197	.218	.209	.213	.011
8	.206	.197	.339	.316	.044
9	.165	.182	.220	.111	.103
10	.260	.271	.311	.215	.004
11	.195	.300	.367	.245	-.008
12	.222	.287	.229	.179	-.015
13	.172	.101	.170	.119	-.098
14	.280	.217	.202	.099	-.045
15	.193	.165	.063	-.057	-.068
16	.220	.101	.022	-.115	
17	.161	.154	.085	-.073	
18	.175	.168	.128	-.075	
19	-.065	.092	.069	-.019	
c_n	0.248	0.271	0.303	0.252	0.168
c_m	-.0389	-.0291	-.0229	.0129	.0228

$C_N' = 0.249$
$C_m' = -.0140$
$C_b' = .102$

$x'_{cp} = 30.6$
$y'_{cp} = 41.0$

(f) $M = 1.02$ $\alpha = 4.7^\circ$
$C_{N_A} = 0.25$ $\delta_{a_L} = 1.2^\circ$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.840	1.174	1.281	1.326	0.983
2	.609	1.016	1.027	1.116	.925
3	.563	.857	.863	.969	.633
4	.464	.519	.728	.870	.287
5	.339	.313	.288	.760	.229
6	.326	.284	.279	.409	.183
7	.244	.260	.238	.366	.045
8	.253	.241	.366	.373	.095
9	.222	.240	.249	.173	.081
10	.298	.355	.382	.317	-.037
11	.270	.329	.399	.289	-.060
12	.246	.341	.272	.178	-.063
13	.201	.123	.209	.130	-.115
14	.293	.245	.212	.091	-.078
15	.210	.201	.092	-.068	-.072
16	.237	.129	.033	-.114	
17	.194	.220	.084	-.069	
18	.231	.189	.135	-.093	
19	-.047	.099	.053	-.049	
c_n	0.291	0.327	0.345	0.306	0.209
c_m	-.0451	-.0353	-.0268	-.0134	.0267

$C_N' = 0.297$
$C_m' = -.0174$
$C_b' = .123$

$x'_{cp} = 30.8$
$y'_{cp} = 41.2$

TABLE XII.- Continued.

[M ≈ 1.01]

(g) $M = 1.02$ $\alpha = 5.1^{\circ}$
$C_{N_A} = 0.31$ $\delta_{a_L} = 1.2^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.076	1.279	1.372	1.407	1.088
2	.717	1.121	1.105	1.203	1.001
3	.674	.953	.974	1.079	.715
4	.570	.921	.829	.987	.366
5	.430	.395	.614	.840	.317
6	.427	.352	.482	.490	.269
7	.344	.323	.354	.538	.306
8	.315	.309	.423	.599	.124
9	.279	.344	.331	.258	.081
10	.390	.395	.440	.416	-.044
11	.338	.381	.446	.338	-.067
12	.285	.378	.305	.203	-.075
13	.237	.164	.253	.152	-.115
14	.326	.267	.273	.109	-.066
15	.242	.230	.126	-.042	-.083
16	.269	.165	.095	-.125	
17	.225	.252	.106	-.058	
18	.241	.256	.145	-.075	
19	-.025	.106	.053	-.060	
c_n	0.358	0.402	0.417	0.376	0.289
c_m	-.0508	-.0406	-.0341	.0086	.0181

$C_N' = 0.368$ $x'_{cp} = 31.2$
$C_m' = -.0229$ $y'_{cp} = 41.7$
$C_b' = .153$

(h) $M = 1.02$ $\alpha = 5.5^{\circ}$
$C_{N_A} = 0.34$ $\delta_{a_L} = 1.1^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.178	1.344	1.434	1.475	1.126
2	.781	1.174	1.155	1.256	1.039
3	.722	1.010	1.022	1.127	.749
4	.636	.950	.877	1.026	.412
5	.487	.472	.680	.882	.350
6	.460	.382	.633	.538	.294
7	.377	.366	.431	.591	.350
8	.353	.338	.451	.643	.219
9	.341	.395	.394	.420	.095
10	.404	.410	.458	.434	-.037
11	.372	.412	.476	.375	-.052
12	.299	.400	.316	.218	-.075
13	.260	.190	.275	.167	-.115
14	.340	.279	.307	.109	-.055
15	.257	.238	.140	-.042	-.075
16	.269	.190	.128	-.125	
17	.240	.278	.106	-.047	
18	.259	.282	.153	-.067	
19	-.014	.110	.057	-.049	
c_n	0.389	0.431	0.453	0.410	0.321
c_m	-.0528	-.0445	-.0378	.0064	.0134

$C_N' = 0.398$ $x'_{cp} = 31.6$
$C_m' = -.0262$ $y'_{cp} = 41.9$
$C_b' = .167$

TABLE XII.- Continued.

[M ≈ 1.01]

(i) $M = 1.02$ $\alpha = 6.0^\circ$
$C_{N_A} = 0.40$ $\delta_{a_L} = 1.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.362	1.462	1.520	1.579	1.221
2	.884	1.289	1.259	1.333	1.119
3	.832	1.140	1.118	1.232	.845
4	.736	1.022	1.002	1.114	.509
5	.573	.607	.770	.952	.409
6	.522	.464	.765	.648	.391
7	.477	.443	.658	.682	.402
8	.420	.407	.612	.726	.335
9	.417	.458	.497	.564	.263
10	.450	.484	.520	.632	.055
11	.433	.453	.523	.424	.022
12	.328	.418	.353	.272	-.034
13	.299	.249	.301	.196	-.097
14	.395	.297	.358	.142	-.026
15	.300	.270	.174	-.015	-.053
16	.306	.229	.164	-.085	
17	.281	.333	.165	-.044	
18	.294	.333	.171	-.052	
19	.025	.117	.046	-.064	
c_n	0.449	0.490	0.530	0.489	0.401
c_m	-.0602	-.0517	-.0457	-.0041	-.0032

$C_N' = 0.465$ $x'_{cp} = 32.5$
$C_m' = -.0351$ $y'_{cp} = 42.5$
$C_b' = .198$

(j) $M = 1.02$ $\alpha = 6.6^\circ$
$C_{N_A} = 0.47$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.541	1.697	1.691	1.702	1.343
2	1.064	1.433	1.405	1.491	1.275
3	.960	1.302	1.266	1.354	.969
4	.870	1.176	1.128	1.262	.607
5	.704	.811	.899	1.075	.497
6	.646	.608	.884	.763	.472
7	.554	.539	.790	.769	.487
8	.519	.507	.839	.857	.381
9	.492	.556	.605	.694	.329
10	.537	.575	.586	.746	.154
11	.500	.510	.601	.691	.195
12	.380	.476	.415	.330	.148
13	.334	.323	.353	.248	-.008
14	.455	.326	.403	.179	.054
15	.317	.310	.236	.012	-.039
16	.361	.300	.198	-.046	
17	.310	.386	.242	-.011	
18	.337	.391	.232	-.035	
19	.041	.126	.004	-.063	
c_n	0.530	0.583	0.622	0.583	0.498
c_m	-.0690	-.0614	-.0569	-.0157	-.0241

$C_N' = 0.554$ $x'_{cp} = 33.3$
$C_m' = -.0458$ $y'_{cp} = 42.8$
$C_b' = .237$

TABLE XII.- Continued.

[M ≈ 1.01]

(k) M = 1.01 $\alpha = 7.2^\circ$
$C_{N_A} = 0.54$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.676	1.702	1.771	1.813	1.445
2	1.219	1.547	1.480	1.576	1.357
3	1.080	1.415	1.358	1.467	1.044
4	.989	1.252	1.234	1.345	.696
5	.790	1.021	.996	1.188	.560
6	.728	.701	.981	.846	.517
7	.629	.640	.868	.882	.542
8	.619	.579	.941	.931	.434
9	.573	.635	.728	.785	.374
10	.579	.639	.664	.822	.202
11	.556	.559	.653	.780	.232
12	.432	.519	.469	.505	.200
13	.368	.377	.398	.320	.156
14	.486	.364	.439	.192	.202
15	.354	.347	.296	.056	.060
16	.388	.329	.235	-.043	
17	.349	.412	.271	.015	
18	.370	.426	.283	-.016	
19	.065	.131	.004	-.071	
c_n	0.595	0.645	0.693	0.655	0.570
c_m	-.0753	-.0693	-.0675	-.0265	-.0422

$C_N' = 0.611$
$C_m' = -.0527$
$C_b' = .259$
$x'_{cp} = 33.6$
$y'_{cp} = 42.4$

(l) M = 1.01 $\alpha = 7.5^\circ$
$C_{N_A} = 0.58$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.748	1.775	1.812	1.859	1.495
2	1.318	1.608	1.564	1.627	1.392
3	1.161	1.486	1.404	1.508	1.095
4	1.042	1.298	1.300	1.402	.760
5	.866	1.102	1.026	1.228	.606
6	.778	.789	1.051	.912	.578
7	.695	.696	.929	.922	.597
8	.664	.641	1.001	.973	.457
9	.641	.674	.853	.824	.397
10	.609	.681	.713	.857	.225
11	.584	.580	.680	.823	.228
12	.462	.539	.504	.593	.224
13	.399	.381	.445	.410	.182
14	.501	.376	.453	.230	.241
15	.377	.343	.327	.064	.171
16	.411	.355	.254	.004	
17	.377	.447	.298	.027	
18	.377	.441	.302	.012	
19	.084	.162	.000	-.083	
c_n	0.633	0.684	0.738	0.701	0.613
c_m	-.0791	-.0726	-.0735	-.0362	-.0509

$C_N' = 0.660$
$C_m' = -.0605$
$C_b' = .284$
$x'_{cp} = 34.2$
$y'_{cp} = 43.1$

TABLE XII.- Continued.

[$M \approx 1.01$]

(m) $M = 1.01$ $\alpha = 8.1^\circ$
$C_{N_A} = 0.62$ $\delta_{a_L} = 1.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.856	1.839	1.885	1.931	1.560
2	1.379	1.694	1.621	1.693	1.461
3	1.230	1.556	1.464	1.573	1.152
4	1.123	1.388	1.364	1.473	.814
5	.952	1.170	1.087	1.300	.680
6	.854	.887	1.117	.983	.635
7	.754	.756	1.012	.989	.640
8	.734	.707	1.072	1.041	.494
9	.690	.733	.957	.887	.435
10	.650	.729	.799	.921	.254
11	.616	.632	.731	.888	.281
12	.499	.573	.530	.651	.253
13	.429	.430	.479	.527	.218
14	.535	.406	.492	.286	.278
15	.414	.368	.361	.108	.212
16	.436	.372	.302	.023	
17	.408	.485	.327	.062	
18	.417	.475	.324	.032	
19	.111	.174	.008	− .072	
c_n	0.684	0.736	0.794	0.760	0.662
c_m	−.0857	−.0788	−.0825	−.0467	−.0599

$C_N' = 0.712$
$C_m' = -.0680$
$C_b' = .307$

$x'_{cp} = 34.6$
$y'_{cp} = 43.1$

(n) $M = 1.00$ $\alpha = 9.3^\circ$
$C_{N_A} = 0.73$ $\delta_{a_L} = 1.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.997	2.004	2.046	2.073	1.687
2	1.529	1.853	1.774	1.844	1.607
3	1.385	1.730	1.627	1.716	1.302
4	1.295	1.588	1.505	1.623	.975
5	1.144	1.330	1.223	1.428	.821
6	1.000	1.199	1.244	1.136	.756
7	.899	.959	1.161	1.121	.737
8	.899	.845	1.204	1.182	.581
9	.844	.877	1.089	1.010	.525
10	.755	.834	1.043	1.043	.328
11	.719	.741	.872	.984	.356
12	.583	.654	.645	.754	.299
13	.489	.510	.569	.639	.320
14	.603	.509	.591	.475	.367
15	.476	.426	.435	.336	.303
16	.487	.441	.410	.217	
17	.468	.567	.373	.171	
18	.470	.543	.350	.064	
19	.127	.188	.045	− .008	
c_n	0.792	0.862	0.921	0.891	0.773
c_m	−.0994	−.0945	−.1054	−.0755	−.0793

$C_N' = 0.891$
$C_m' = -.0866$
$C_b' = .359$

$x'_{cp} = 35.4$
$y'_{cp} = 43.2$

[redacted]

TABLE XII.- Concluded.

[$M \approx 1.01$]

(o) $M = 1.00$ $\alpha = 9.7^\circ$
$C_{N_A} = 0.75$ $\delta_{a_L} = 1.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.005	2.039	2.048	2.099	1.704
2	1.549	1.842	1.796	1.865	1.619
3	1.447	1.761	1.645	1.743	1.330
4	1.320	1.596	1.545	1.636	.991
5	1.189	1.367	1.241	1.468	.856
6	1.037	1.254	1.276	1.161	.779
7	.937	1.012	1.175	1.141	.762
8	.927	.890	1.247	1.207	.599
9	.852	.896	1.109	1.038	.544
10	.774	.861	1.086	1.063	.342
11	.729	.771	.933	.998	.374
12	.605	.660	.683	.774	.314
13	.489	.534	.600	.657	.358
14	.633	.529	.615	.499	.381
15	.488	.428	.460	.367	.330
16	.511	.454	.443	.284	
17	.482	.586	.360	.215	
18	.486	.555	.307	.110	
19	.141	.197	.068	.020	
c_n	0.813	0.885	0.949	0.919	0.796
c_m	-.1035	-.0981	-.1100	-.0833	-.0850

$C_N' = 0.855$
$C_m' = -.0914$
$C_b' = .370$

$x'_{cp} = 35.7$
$y'_{cp} = 43.2$

[redacted]

TABLE XIII

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 1.10]$

(a) $M = 1.10$ $\alpha = 2.7^\circ$

$C_{N_A} = 0.03$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.244	0.144	0.649	0.648	0.125
2	.133	.196	.112	.215	.103
3	.083	.171	.038	.255	-.080
4	.061	.168	.017	.268	-.044
5	.004	.042	-.020	.119	.000
6	.033	.017	.045	-.050	-.006
7	.033	-.038	.059	-.029	.013
8	.025	.017	.169	.072	.000
9	-.023	.006	.042	-.013	-.029
10	.052	.048	-.003	.035	-.010
11	.016	.069	.099	.036	-.049
12	.068	.093	.061	-.013	-.026
13	.054	-.010	.041	.006	-.050
14	.162	.126	.118	.092	-.054
15	.044	.079	.026	-.013	-.075
16	.114	.009	.003	-.080	
17	.043	.079	.070	-.032	
18	.071	.074	.101	-.045	
19	-.053	.038	.076	-.007	
c_n	0.059	0.063	0.080	0.053	-0.015
c_m	-.0159	-.0115	-.0104	.0096	.0091

$C_N' = 0.052$

$C_m' = -.0044$

$C_b' = .018$

$x'_{cp} = 33.4$

$y'_{cp} = 35.1$

(b) $M = 1.10$ $\alpha = 2.7^\circ$

$C_{N_A} = 0.05$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.306	0.199	0.768	0.817	0.456
2	.188	.208	.159	.316	.190
3	.166	.208	.101	.275	-.084
4	.079	.184	.067	.255	-.050
5	.050	.062	.004	.159	-.003
6	.062	.051	.049	-.042	-.003
7	.066	-.004	.075	.000	.013
8	.041	.034	.177	.093	.009
9	.013	.099	.061	-.003	-.019
10	.071	.080	.025	.045	.000
11	.046	.105	.134	.055	-.036
12	.099	.115	.076	.009	-.019
13	.071	.010	.057	.029	-.041
14	.183	.128	.127	.113	-.041
15	.056	.092	.045	.007	-.065
16	.132	.012	.006	-.067	
17	.069	.089	.070	-.016	
18	.074	.080	.113	-.036	
19	-.044	.044	.082	-.006	
c_n	0.083	0.085	0.102	0.076	0.010
c_m	-.0194	-.0147	-.0122	.0078	.0114

$C_N' = 0.075$

$C_m' = -.0066$

$C_b' = .028$

$x'_{cp} = 33.9$

$y'_{cp} = 37.6$

TABLE XIII.- Continued.

$\left[M \approx 1.10\right]$

(c) $M = 1.10$ $\alpha = 2.8^{\circ}$
$C_{N_A} = 0.09$ $\delta_{a_L} = 0.2^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.389	0.611	0.853	0.910	0.591
2	.268	.311	.532	.659	.546
3	.232	.257	.205	.544	.054
4	.161	.217	.129	.334	-.059
5	.107	.087	.041	.183	-.032
6	.107	.084	.090	-.012	-.031
7	.066	.062	.096	.017	.006
8	.062	.055	.205	.157	.009
9	.073	.064	.096	.035	-.009
10	.116	.121	.060	.067	.016
11	.098	.143	.159	.065	-.019
12	.104	.166	.133	.019	-.006
13	.082	.026	.085	.032	-.034
14	.205	.150	.144	.138	-.041
15	.093	.110	.054	.020	-.049
16	.157	.031	.013	-.038	
17	.095	.104	.066	-.006	
18	.110	.093	.106	-.016	
19	-.022	.044	.085	-.010	
c_n	0.121	0.127	0.144	0.120	0.045
c_m	.0244	.0164	.0136	.0073	.0147

$C_N' = 0.114$ $x'_{cp} = 31.9$
$C_m' = -.0079$ $y'_{cp} = 39.4$
$C_b' = .045$

(d) $M = 1.10$ $\alpha = 3.3^{\circ}$
$C_{N_A} = 0.15$ $\delta_{a_L} = 0.2^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	0.541	0.766	0.962	1.046	0.695
2	.399	.582	.675	.790	.663
3	.347	.442	.536	.711	.377
4	.264	.308	.434	.598	.031
5	.197	.153	.118	.494	.013
6	.189	.176	.134	.078	-.015
7	.143	.141	.154	.066	-.006
8	.115	.118	.253	.223	.003
9	.125	.136	.140	.076	-.016
10	.173	.181	.150	.129	.019
11	.156	.184	.241	.100	-.010
12	.168	.251	.193	.059	.003
13	.116	.080	.151	.073	-.019
14	.232	.169	.179	.147	-.022
15	.137	.138	.095	.032	-.019
16	.187	.071	.078	-.044	
17	.137	.144	.066	.006	
18	.143	.121	.112	-.006	
19	-.009	.082	.078	.006	
c_n	0.181	0.196	0.221	0.187	0.103
c_m	-.0314	-.0232	-.0209	.0071	.0184

$C_N' = 0.180$ $x'_{cp} = 31.8$
$C_m' = -.0123$ $y'_{cp} = 40.7$
$C_b' = .073$

TABLE XIII.- Continued.

[M ≈ 1.10]

(e) $M = 1.10$ $\alpha = 4.1^\circ$
$C_{N_A} = 0.20$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.694	0.875	1.027	1.119	0.781
2	.487	.701	.785	.893	.731
3	.449	.676	.623	.784	.460
4	.355	.416	.533	.673	.160
5	.241	.227	.215	.578	.142
6	.247	.214	.207	.247	.068
7	.205	.198	.195	.144	.029
8	.164	.164	.309	.307	.016
9	.174	.168	.185	.142	-.022
10	.213	.225	.215	.170	.025
11	.215	.246	.291	.148	-.019
12	.195	.311	.233	.106	.019
13	.152	.134	.186	.111	-.015
14	.266	.197	.234	.169	.013
15	.173	.160	.101	.039	-.003
16	.212	.098	.131	-.038	
17	.166	.182	.085	.006	
18	.164	.168	.121	-.003	
19	.015	.094	.068	.000	
c_n	0.228	0.249	0.275	0.243	0.152
c_m	-.0367	-.0303	-.0281	.0037	.0173

$C_N' = 0.230$ $x'_{cp} = 32.6$
$C_m' = -.0176$ $y'_{cp} = 41.3$
$C_b' = .095$

(f) $M = 1.10$ $\alpha = 4.5^\circ$
$C_{N_A} = 0.24$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.802	0.973	1.091	1.188	0.862
2	.552	.812	.849	.943	.776
3	.501	.734	.723	.850	.494
4	.430	.591	.608	.737	.232
5	.301	.304	.383	.660	.198
6	.290	.254	.302	.320	.144
7	.248	.255	.240	.295	.127
8	.212	.213	.348	.431	.043
9	.212	.205	.219	.157	.000
10	.251	.280	.258	.226	.031
11	.259	.284	.346	.189	.000
12	.225	.335	.264	.152	.022
13	.185	.168	.222	.152	-.006
14	.293	.215	.268	.171	.019
15	.188	.178	.129	.042	-.010
16	.230	.131	.137	-.035	
17	.185	.206	.138	.000	
18	.197	.199	.130	-.003	
19	.018	.128	.081	-.003	
c_n	0.269	0.300	0.319	0.288	0.198
c_m	-.0416	-.0347	-.0330	.0006	.0121

$C_N' = 0.276$ $x'_{cp} = 32.8$
$C_m' = -.0216$ $y'_{cp} = 41.5$
$C_b' = .115$

TABLE XIII.- Continued.

[$M \approx 1.10$]

(g) $M = 1.10$ $\alpha = 5.2^\circ$
$C_{N_A} = 0.31$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.041	1.117	1.234	1.277	0.960
2	.670	.996	.971	1.087	.906
3	.615	.836	.871	.969	.659
4	.546	.834	.727	.891	.351
5	.407	.419	.564	.756	.277
6	.400	.358	.539	.446	.217
7	.321	.324	.437	.467	.219
8	.309	.297	.445	.569	.202
9	.274	.268	.285	.339	.147
10	.335	.375	.366	.326	.075
11	.343	.369	.434	.326	.038
12	.291	.376	.326	.238	.029
13	.238	.251	.275	.205	.003
14	.327	.231	.317	.192	.047
15	.206	.215	.183	.068	-.019
16	.270	.186	.171	-.013	
17	.224	.252	.191	.022	
18	.227	.252	.198	.019	
19	.068	.184	.091	-.016	
c_n	0.345	0.385	0.411	0.378	0.291
c_m	-.0497	-.0433	-.0448	-.0092	-.0011

$C_N' = 0.360$
$C_m' = -.0310$
$C_b' = .152$
$x'_{cp} = 33.6$
$y'_{cp} = 42.2$

(h) $M = 1.10$ $\alpha = 5.5^\circ$
$C_{N_A} = 0.34$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.131	1.187	1.291	1.350	1.028
2	.710	1.065	1.034	1.131	.961
3	.666	.880	.915	1.041	.693
4	.608	.903	.790	.944	.395
5	.461	.498	.614	.806	.328
6	.442	.422	.605	.484	.248
7	.355	.370	.513	.526	.255
8	.363	.335	.511	.604	.265
9	.307	.303	.336	.381	.238
10	.363	.420	.423	.440	.123
11	.389	.408	.479	.436	.099
12	.311	.396	.374	.251	.045
13	.264	.280	.313	.219	-.012
14	.359	.251	.329	.205	.047
15	.238	.222	.205	.065	-.013
16	.283	.214	.172	-.003	
17	.257	.281	.207	.040	
18	.248	.278	.220	.022	
19	.083	.206	.094	-.019	
c_n	0.381	0.425	0.454	0.418	0.334
c_m	-.0544	-.0479	-.0502	-.0142	-.0094

$C_N' = 0.399$
$C_m' = -.0360$
$C_b' = .169$
$x'_{cp} = 34.0$
$y'_{cp} = 42.4$

TABLE XIII.- Continued.

$[M \approx 1.10]$

(i) $M = 1.10$ $\quad \alpha = 6.2^{\circ}$

$C_{N_A} = 0.42$ $\quad \delta_{a_L} = 0.6^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.266	1.324	1.402	1.452	1.133
2	.809	1.182	1.138	1.251	1.045
3	.770	1.022	1.037	1.147	.786
4	.708	.988	.908	1.047	.485
5	.601	.668	.724	.901	.404
6	.530	.532	.700	.580	.341
7	.470	.450	.630	.621	.345
8	.446	.412	.671	.689	.334
9	.383	.386	.429	.458	.288
10	.458	.516	.514	.627	.167
11	.458	.472	.540	.601	.185
12	.372	.447	.409	.339	.163
13	.290	.331	.352	.254	.093
14	.395	.283	.359	.221	.117
15	.266	.257	.256	.094	.013
16	.327	.242	.203	.013	
17	.287	.313	.229	.065	
18	.285	.320	.255	.045	
19	.117	.238	.117	-.026	
c_n	0.453	0.497	0.531	0.500	0.416
c_m	-.0635	-.0563	-.0588	-.0254	-.0267

$C_N' = 0.473$ $\quad x'_{cp} = 34.6$

$C_m' = -.0456$ $\quad y'_{cp} = 42.7$

$C_b' = .202$

(j) $M = 1.10$ $\quad \alpha = 6.6^{\circ}$

$C_{N_A} = 0.45$ $\quad \delta_{a_L} = 0.6^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	1.350	1.380	1.452	1.507	1.183
2	.873	1.237	1.199	1.285	1.098
3	.808	1.109	1.083	1.197	.836
4	.756	1.018	.958	1.089	.528
5	.675	.776	.769	.946	.442
6	.563	.570	.761	.642	.378
7	.540	.491	.672	.663	.412
8	.475	.433	.732	.744	.346
9	.446	.484	.544	.531	.310
10	.480	.547	.561	.662	.180
11	.481	.493	.569	.627	.189
12	.394	.454	.429	.420	.179
13	.318	.325	.380	.292	.133
14	.407	.315	.383	.225	.174
15	.291	.260	.279	.100	.084
16	.334	.261	.225	.025	
17	.303	.335	.239	.072	
18	.289	.340	.265	.058	
19	.142	.247	.124	-.029	
c_n	0.484	0.529	0.572	0.539	0.457
c_m	-.0659	-.0597	-.0642	-.0308	-.0348

$C_N' = 0.507$ $\quad x'_{cp} = 34.9$

$C_m' = -.0500$ $\quad y'_{cp} = 42.9$

$C_b' = .218$

TABLE XIII.- Continued.

[$M \approx 1.10$]

(k) $M = 1.10$ $\quad \alpha = 7.6^\circ$
$C_{N_A} = 0.50$ $\quad \delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.474	1.484	1.549	1.601	1.285
2	1.056	1.349	1.313	1.374	1.164
3	.947	1.252	1.205	1.295	.900
4	.904	1.099	1.071	1.199	.627
5	.785	.936	.876	1.061	.528
6	.687	.714	.868	.739	.476
7	.638	.614	.783	.769	.494
8	.587	.556	.835	.815	.403
9	.575	.604	.731	.687	.357
10	.551	.610	.675	.727	.240
11	.544	.578	.645	.719	.249
12	.454	.521	.485	.539	.223
13	.364	.383	.426	.453	.196
14	.456	.414	.450	.336	.230
15	.343	.286	.305	.183	.192
16	.358	.299	.286	.075	
17	.351	.398	.268	.134	
18	.340	.384	.290	.102	
19	.168	.286	.137	-.007	
c_n	0.568	0.614	0.658	0.630	0.531
c_m	-.0751	-.0721	-.0768	-.0497	-.0501

$C_N{}' = 0.590$ $\quad x'_{cp} = 35.7$
$C_m{}' = -.0628$ $\quad y'_{cp} = 42.9$
$C_b{}' = .253$

(l) $M = 1.10$ $\quad \alpha = 8.4^\circ$
$C_{N_A} = 0.56$ $\quad \delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.565	1.570	1.627	1.678	1.362
2	1.165	1.451	1.401	1.460	1.241
3	1.041	1.333	1.287	1.373	.981
4	.989	1.173	1.165	1.269	.703
5	.874	1.013	.939	1.128	.577
6	.759	.826	.956	.837	.543
7	.693	.682	.869	.850	.547
8	.659	.630	.919	.898	.455
9	.646	.666	.810	.752	.377
10	.605	.669	.781	.793	.282
11	.591	.637	.704	.773	.276
12	.511	.557	.527	.607	.242
13	.399	.412	.471	.502	.241
14	.483	.461	.480	.416	.263
15	.381	.309	.354	.243	.219
16	.381	.331	.328	.130	
17	.378	.441	.313	.160	
18	.368	.404	.319	.122	
19	.178	.306	.130	-.013	
c_n	0.622	0.671	0.722	0.695	0.583
c_m	-.0820	-.0790	-.0865	-.0610	-.0578

$C_N{}' = 0.647$ $\quad x'_{cp} = 35.9$
$C_m{}' = -.0708$ $\quad y'_{cp} = 43.0$
$C_b{}' = .278$

TABLE XIII.- Continued.

[M ≈ 1.10]

(m) $M = 1.10$ $\alpha = 9.1^\circ$
$C_{N_A} = 0.61$ $\delta_{a_L} = 0.7^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.647	1.652	1.700	1.742	1.498
2	1.227	1.515	1.472	1.534	1.308
3	1.122	1.410	1.351	1.445	1.041
4	1.021	1.263	1.238	1.348	.770
5	.933	1.085	.998	1.204	.649
6	.814	.951	1.014	.905	.590
7	.756	.763	.950	.905	.603
8	.718	.690	.982	.955	.471
9	.714	.718	.879	.817	.422
10	.649	.712	.871	.851	.299
11	.625	.670	.753	.816	.306
12	.542	.587	.570	.649	.256
13	.420	.432	.516	.551	.276
14	.512	.484	.507	.455	.282
15	.407	.328	.400	.313	.262
16	.407	.356	.363	.201	
17	.409	.460	.352	.205	
18	.396	.453	.336	.164	
19	.181	.318	.110	.010	
c_n	0.663	0.722	0.775	0.751	0.632
c_m	−.0882	−.0846	−.0949	−.0717	−.0653

$C_N' = 0.696$ $x'_{cp} = 36.2$
$C_m' = -.0780$ $y'_{cp} = 43.1$
$C_b' = .300$

(n) $M = 1.09$ $\alpha = 9.7^\circ$
$C_{N_A} = 0.66$ $\delta_{a_L} = 0.8^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.728	1.745	1.794	1.815	1.497
2	1.335	1.604	1.550	1.602	1.388
3	1.218	1.511	1.449	1.530	1.125
4	1.108	1.386	1.313	1.425	.835
5	1.036	1.177	1.084	1.269	.732
6	.897	1.062	1.084	.992	.658
7	.830	.867	1.038	.992	.664
8	.813	.766	1.043	1.039	.521
9	.790	.785	.960	.891	.462
10	.710	.768	.940	.915	.335
11	.673	.718	.839	.871	.339
12	.575	.634	.630	.702	.292
13	.459	.473	.566	.589	.302
14	.545	.527	.566	.488	.332
15	.440	.368	.443	.354	.290
16	.433	.386	.415	.267	
17	.437	.313	.385	.315	
18	.432	.500	.375	.217	
19	.200	.310	.111	.043	
c_n	0.722	0.785	0.838	0.814	0.690
c_m	−.0953	−.0926	−.1066	−.0833	−.0742

$C_N' = 0.756$ $x'_{cp} = 36.5$
$C_m' = -.0867$ $y'_{cp} = 43.1$
$C_b' = .326$

[redacted]

[redacted]

TABLE XIII.- Continued.

[M ≈ 1.10]

(o) M = 1.09   α = 10.1°
C_{N_A} = 0.70 δ_{a_L} = 0.9° up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.796	1.810	1.849	1.870	1.559
2	1.402	1.671	1.628	1.653	1.428
3	1.309	1.569	1.511	1.584	1.177
4	1.185	1.461	1.379	1.488	.896
5	1.113	1.230	1.126	1.329	.771
6	.952	1.136	1.139	1.043	.696
7	.884	.952	1.090	1.039	.710
8	.859	.839	1.107	1.079	.571
9	.831	.831	.997	.938	.496
10	.748	.799	.996	.965	.353
11	.703	.770	.925	.912	.354
12	.600	.666	.662	.750	.320
13	.487	.501	.601	.624	.345
14	.570	.550	.592	.516	.363
15	.461	.382	.465	.376	.304
16	.458	.410	.459	.304	
17	.469	.535	.416	.387	
18	.459	.522	.383	.285	
19	.224	.318	.115	.070	
c_n	0.762	0.830	0.883	0.860	0.731
c_m	-.1003	-.0977	-.1139	-.0928	-.0811

C_N' = 0.799 x'_{cp} = 36.6
C_m' = -.0929 y'_{cp} = 43.1
C_b' = .344

(p) M = 1.08   α = 10.6°
C_{N_A} = 0.74 δ_{a_L} = 0.9° up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.854	1.870	1.899	1.950	1.624
2	1.507	1.741	1.687	1.728	1.500
3	1.385	1.638	1.572	1.645	1.236
4	1.264	1.539	1.443	1.549	.950
5	1.188	1.302	1.192	1.383	.845
6	1.030	1.212	1.209	1.114	.755
7	.945	1.074	1.153	1.093	.741
8	.924	.896	1.173	1.142	.597
9	.897	.883	1.059	.996	.519
10	.797	.863	1.051	1.017	.388
11	.741	.794	.986	.957	.383
12	.642	.707	.721	.787	.332
13	.513	.531	.641	.661	.370
14	.593	.583	.654	.546	.391
15	.480	.404	.501	.395	.353
16	.483	.444	.504	.349	
17	.485	.567	.415	.432	
18	.487	.551	.359	.316	
19	.251	.319	.136	.127	
c_n	0.812	0.880	0.934	0.910	0.775
c_m	-.1060	-.1046	-.1222	-.1008	-.0872

C_N' = 0.847 x'_{cp} = 36.8
C_m' = -.0995 y'_{cp} = 43.1
C_b' = .365

TABLE XIII.- Continued.

[M ≈ 1.10]

(q) $M = 1.08$ $\alpha = 11.4^{\circ}$
$C_{N_A} = 0.79$ $\delta_{a_L} = 1.0^{\circ}$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.918	1.944	1.979	2.014	1.672
2	1.605	1.821	1.759	1.777	1.560
3	1.480	1.709	1.651	1.715	1.308
4	1.375	1.613	1.526	1.616	1.013
5	1.255	1.379	1.258	1.447	.926
6	1.105	1.281	1.280	1.198	.801
7	1.015	1.214	1.212	1.160	.802
8	.989	.972	1.256	1.211	.644
9	.958	.951	1.129	1.055	.584
10	.846	.911	1.097	1.069	.417
11	.790	.860	1.038	1.007	.432
12	.694	.744	.815	.850	.378
13	.543	.578	.711	.722	.424
14	.627	.603	.694	.575	.453
15	.509	.456	.560	.455	.396
16	.532	.466	.530	.374	
17	.512	.610	.411	.467	
18	.522	.591	.349	.348	
19	.272	.335	.184	.185	
c_n	0.868	0.936	0.992	0.965	0.835
c_m	-.1140	-.1123	-.1311	-.1102	-.0996

$C_N' = 0.901$ $x'_{cp} = 37.0$
$C_m' = -.1078$ $y'_{cp} = 43.1$
$C_b' = .388$

(r) $M = 1.08$ $\alpha = 12.2^{\circ}$
$C_{N_A} = 0.85$ $\delta_{a_L} = 1.0^{\circ}$ up

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.990	2.030	2.056	2.069	1.746
2	1.712	1.887	1.823	1.853	1.624
3	1.609	1.796	1.716	1.781	1.371
4	1.477	1.692	1.577	1.695	1.080
5	1.355	1.446	1.341	1.531	1.010
6	1.157	1.366	1.345	1.281	.862
7	1.083	1.294	1.292	1.230	.852
8	1.062	1.055	1.318	1.278	.691
9	1.034	1.025	1.198	1.136	.648
10	.913	.975	1.168	1.127	.470
11	.834	.924	1.113	1.069	.473
12	.728	.800	.914	.922	.407
13	.583	.619	.783	.751	.473
14	.665	.655	.761	.619	.500
15	.549	.483	.615	.465	.437
16	.563	.515	.538	.417	
17	.557	.654	.385	.500	
18	.554	.636	.355	.408	
19	.303	.350	.244	.231	
c_n	0.925	0.997	1.052	1.026	0.893
c_m	-.1218	-.1228	-.1422	-.1209	-.1105

$C_N' = 0.959$ $x'_{cp} = 37.3$
$C_m' = -.1176$ $y'_{cp} = 43.1$
$C_b' = .413$

TABLE XIII.- Continued.

$[M \approx 1.10]$

(s) $M = 1.07$ $\alpha = 13.0^{\circ}$
$C_{N_A} = 0.90$ $\delta_{a_L} = 1.0^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	2.072	2.084	2.117	2.112	1.808
2	1.788	1.951	1.864	1.917	1.706
3	1.692	1.859	1.792	1.861	1.438
4	1.580	1.771	1.646	1.762	1.153
5	1.452	1.536	1.419	1.598	1.088
6	1.257	1.430	1.402	1.360	.930
7	1.160	1.364	1.376	1.304	.902
8	1.134	1.151	1.383	1.354	.752
9	1.111	1.096	1.262	1.189	.685
10	.971	1.039	1.233	1.179	.515
11	.898	.984	1.158	1.114	.498
12	.775	.852	.981	.975	.453
13	.625	.683	.888	.816	.504
14	.698	.685	.844	.662	.546
15	.581	.531	.672	.504	.476
16	.602	.546	.510	.455	
17	.591	.688	.409	.526	
18	.602	.680	.401	.423	
19	.319	.361	.316	.288	
c_n	0.986	1.056	1.109	1.080	0.948
c_m	-.1304	-.1326	-.1529	-.1300	-.1199

$C_N{}' = 1.014$
$C_m{}' = -.1265$
$C_b{}' = .437$
$x'_{cp} = 37.5$
$y'_{cp} = 43.0$

(t) $M = 1.06$ $\alpha = 13.8^{\circ}$
$C_{N_A} = 0.95$ $\delta_{a_L} = 1.1^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	2.128	2.126	2.173	2.146	1.856
2	1.878	2.036	1.955	2.007	1.757
3	1.761	1.934	1.840	1.914	1.509
4	1.687	1.837	1.741	1.837	1.200
5	1.544	1.607	1.519	1.674	1.172
6	1.347	1.510	1.484	1.439	.998
7	1.244	1.438	1.432	1.381	.964
8	1.205	1.246	1.448	1.420	.798
9	1.185	1.178	1.325	1.264	.751
10	1.035	1.096	1.291	1.230	.559
11	.926	1.050	1.220	1.173	.545
12	.820	.907	1.040	1.027	.472
13	.657	.746	.885	.894	.570
14	.740	.721	.684	.629	.579
15	.608	.574	.543	.437	.516
16	.626	.586	.594	.375	
17	.637	.696	.542	.411	
18	.652	.667	.554	.355	
19	.283	.314	.439	.295	
c_n	1.044	1.109	1.162	1.111	1.007
c_m	-.1381	-.1400	-.1595	-.1252	-.1325

$C_N{}' = 1.062$
$C_m{}' = -.1310$
$C_b{}' = .456$
$x'_{cp} = 37.3$
$y'_{cp} = 42.9$

[redacted]

[redacted]

TABLE XIII.- Continued.

[M ≈ 1.10]

(u) $M = 1.06$ $\alpha = 14.6^{\circ}$
$C_{N_A} = 1.01$ $\delta_{a_L} = 1.1^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	2.190	2.168	2.204	2.199	1.936
2	1.965	2.119	2.049	2.085	1.823
3	1.840	2.002	1.934	1.987	1.576
4	1.811	1.909	1.820	1.910	1.278
5	1.625	1.694	1.577	1.756	1.252
6	1.444	1.578	1.559	1.514	1.073
7	1.331	1.491	1.486	1.456	1.021
8	1.268	1.376	1.536	1.501	.858
9	1.253	1.268	1.392	1.320	.804
10	1.117	1.188	1.364	1.297	.597
11	1.001	1.108	1.276	1.225	.597
12	.863	.998	.850	.951	.526
13	.692	.790	.782	.756	.627
14	.787	.760	.702	.562	.638
15	.642	.506	.584	.403	.568
16	.681	.526	.635	.383	
17	.708	.687	.611	.439	
18	.656	.668	.615	.409	
19	.239	.352	.512	.411	
c_n	1.105	1.165	1.196	1.139	1.071
c_m	-.1463	-.1439	-.1599	-.1214	-.1446

$C_N' = 1.107$
$C_m' = -.1333$
$C_b' = .474$
$x'_{cp} = 37.0$
$y'_{cp} = 42.8$

(v) $M = 1.05$ $\alpha = 15.6^{\circ}$
$C_{N_A} = 1.07$ $\delta_{a_L} = 1.0^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	2.296	2.236	2.274	2.255	2.006
2	2.032	2.210	2.117	2.144	1.914
3	1.923	2.082	2.023	2.080	1.669
4	1.886	1.965	1.889	1.971	1.362
5	1.681	1.770	1.673	1.822	1.330
6	1.552	1.658	1.650	1.610	1.154
7	1.405	1.564	1.591	1.533	1.096
8	1.369	1.494	1.582	1.584	.909
9	1.329	1.364	1.459	1.295	.844
10	1.242	1.255	1.223	1.128	.613
11	1.088	1.128	1.088	1.030	.595
12	.927	.963	.904	.903	.527
13	.749	.756	.836	.827	.633
14	.840	.701	.770	.595	.630
15	.672	.559	.635	.438	.501
16	.622	.667	.683	.441	
17	.553	.739	.696	.505	
18	.471	.668	.707	.517	
19	.243	.479	.596	.545	
c_n	1.155	1.217	1.224	1.155	1.125
c_m	-.1434	-.1491	-.1648	-.1228	-.1462

$C_N' = 1.145$
$C_m' = -.1353$
$C_b' = .488$
$x'_{cp} = 36.8$
$y'_{cp} = 42.6$

TABLE XIII.- Concluded.

$\left[M \approx 1.10\right]$

(v) $M = 1.04$ $\alpha = 17.4^{\circ}$

$C_{N_A} = 1.18$ $\delta_{a_L} = 0.1^{\circ}$ up

Orifice	Row				
	1	2	3	4	5
1	2.332	2.262	2.314	2.304	2.088
2	2.097	2.263	2.198	2.229	1.976
3	1.966	2.124	2.097	2.127	1.751
4	1.955	2.042	1.951	2.054	1.442
5	1.731	1.835	1.744	1.882	1.372
6	1.613	1.735	1.712	1.681	1.210
7	1.473	1.612	1.625	1.598	1.128
8	1.432	1.560	1.652	1.623	.906
9	1.394	1.325	1.310	1.283	.854
10	1.306	1.182	1.221	1.156	.636
11	1.190	1.095	1.123	1.086	.626
12	.879	1.018	.943	.949	.582
13	.625	.872	.870	.865	.699
14	.705	.784	.792	.653	.665
15	.645	.659	.663	.489	.527
16	.681	.832	.799	.519	
17	.646	.786	.767	.600	
18	.598	.703	.749	.648	
19	.264	.553	.631	.688	
c_n	1.186	1.265	1.257	1.213	1.171
c_m	-.1450	-.1632	-.1734	-.1380	-.1515

$C_N' = 1.189$

$C_m' = -.1463$

$C_b' = .508$

$x'_{cp} = 37.3$

$y'_{cp} = 42.7$

TABLE XIV

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

[M ≈ 1.15]

(a) $M = 1.14$ $\alpha = 1.9^\circ$
$C_{N_A} = -0.03$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.137	0.016	0.119	0.179	0.008
2	.017	.076	.031	.172	.008
3	.042	.115	-.051	.217	-.098
4	-.040	.094	-.072	.212	-.054
5	-.089	.000	-.079	.054	-.036
6	.000	-.035	.000	-.093	-.003
7	.000	-.072	.030	-.076	-.022
8	-.034	-.043	.147	-.017	-.023
9	-.057	-.036	-.007	-.049	-.048
10	-.081	-.003	-.042	.016	.000
11	-.054	-.028	-.007	.003	-.049
12	.009	.010	.003	-.029	-.043
13	.035	-.085	-.026	-.056	-.035
14	.142	.066	.042	.051	-.046
15	.022	.055	-.023	-.040	-.087
16	.061	.009	-.042	-.111	
17	.010	.052	.013	-.061	
18	.034	.052	.051	-.076	
19	-.045	-.003	.044	-.043	
c_n	-0.003	0.006	0.009	-0.002	-0.040
c_m	-.0065	-.0029	-.0014	.0132	.0097

$C_N' = -0.001$
$C_m' = .0018$
$C_b' = .003$
$x'_{cp} = 176.2$
$y'_{cp} = 243.5$

(b) $M = 1.14$ $\alpha = 1.8^\circ$
$C_{N_A} = 0.01$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.182	0.064	0.232	0.172	0.050
2	.082	.117	.065	.178	.046
3	.080	.151	.017	.231	-.093
4	.000	.114	-.021	.244	-.056
5	-.042	.025	-.049	.095	-.029
6	.013	-.004	.004	-.067	.003
7	.025	-.050	.051	-.067	-.010
8	-.021	-.030	.149	.017	-.019
9	-.020	-.019	.010	-.042	-.045
10	-.068	.016	-.022	.022	.010
11	-.010	-.006	.029	.013	-.036
12	.012	.032	.022	-.022	-.036
13	.057	-.081	-.013	-.032	-.028
14	.153	.068	.045	.060	-.039
15	.041	.054	-.019	-.020	-.089
16	.070	.009	-.016	-.096	
17	.027	.064	.010	-.041	
18	.056	.071	.047	-.065	
19	-.041	.010	.046	-.046	
c_n	0.018	0.023	0.029	0.013	-0.030
c_m	-.0093	-.0047	-.0030	.0106	.0086

$C_N' = 0.015$
$C_m' = .0001$
$C_b' = .003$
$x'_{cp} = 24.5$
$y'_{cp} = 22.8$

[redacted]

[redacted]

TABLE XIV.- Continued.

$[M \approx 1.15]$

(c) $M = 1.14$ $\quad C_{N_A} = 0.05$ $\quad \alpha = 2.0^\circ$ $\quad \delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.261	0.196	0.700	0.723	0.412
2	.172	.209	.147	.359	.302
3	.146	.209	.088	.247	-.054
4	.070	.147	.042	.277	-.078
5	.046	.059	-.008	.139	-.032
6	.054	.042	.033	-.038	-.006
7	.046	-.013	.071	-.013	.000
8	.000	.004	.169	.055	-.009
9	.017	.013	.039	-.010	-.035
10	-.018	.048	.013	.026	.016
11	.030	.021	.070	.029	-.036
12	.046	.067	.045	-.006	-.032
13	.066	-.029	.013	-.023	-.028
14	.181	.103	.062	.076	-.051
15	.060	.076	.003	-.007	-.075
16	.101	.028	.019	-.083	
17	.066	.073	.038	-.038	
18	.077	.077	.054	-.045	
19	-.028	.022	.050	-.049	
c_n	0.058	0.060	0.074	0.056	0.006
c_m	-.0144	-.0089	-.0042	.0132	.0133

$C_N' = 0.053$
$C_m' = -.0016$
$C_b' = .020$
$x'_{cp} = 28.1$
$y'_{cp} = 37.9$

(d) $M = 1.15$ $\quad C_{N_A} = 0.11$ $\quad \alpha = 2.9^\circ$ $\quad \delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.436	0.597	0.831	0.898	0.622
2	.313	.484	.576	.668	.555
3	.296	.428	.391	.601	.257
4	.206	.286	.313	.514	.006
5	.135	.168	.122	.428	.006
6	.148	.142	.134	.056	.003
7	.135	.072	.149	.072	-.019
8	.075	.082	.217	.143	-.003
9	.064	.068	.108	.061	-.030
10	.088	.092	.085	.101	.025
11	.114	.104	.144	.075	-.031
12	.124	.169	.113	.021	-.019
13	.118	.108	.073	-.003	-.027
14	.213	.161	.128	.094	-.043
15	.117	.109	.052	.003	-.069
16	.154	.092	.088	-.098	
17	.133	.131	.113	-.030	
18	.130	.126	.091	-.043	
19	.021	.052	.054	-.037	
c_n	0.137	0.154	0.170	0.136	0.071
c_m	-.0259	-.0189	-.0130	.0154	.0200

$C_N' = 0.137$
$C_m' = -.0069$
$C_b' = .054$
$x'_{cp} = 30.0$
$y'_{cp} = 39.8$

[redacted]

[redacted]

TABLE XIV.- Continued.

[$M \approx 1.15$]

(e) $M = 1.15$ $\quad \alpha = 3.6^\circ$
$C_{N_A} = 0.16$ $\quad \delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.606	0.724	0.936	1.010	0.707
2	.426	.594	.664	.770	.635
3	.398	.606	.525	.718	.360
4	.297	.426	.443	.589	.125
5	.202	.247	.231	.531	.110
6	.226	.199	.211	.199	.080
7	.190	.136	.217	.159	.019
8	.115	.122	.267	.256	.003
9	.095	.107	.148	.107	-.036
10	.141	.150	.133	.152	.027
11	.173	.143	.198	.118	-.028
12	.177	.218	.152	.063	-.019
13	.155	.173	.125	.031	-.021
14	.242	.188	.195	.124	-.052
15	.147	.142	.092	.022	-.056
16	.190	.128	.100	-.082	
17	.154	.164	.161	-.030	
18	.167	.159	.147	-.028	
19	.042	.088	.054	-.016	
c_n	0.191	0.211	0.228	0.196	0.119
c_m	-.0324	-.0255	-.0211	.0107	.0202

$C_N' = 0.191$ $\quad x'_{cp} = 31.5$
$C_m' = -.0124$ $\quad y'_{cp} = 40.7$
$C_b' = .078$

(f) $M = 1.16$ $\quad \alpha = 4.0^\circ$
$C_{N_A} = 0.19$ $\quad \delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.742	0.803	1.002	1.071	0.769
2	.476	.665	.738	.842	.706
3	.471	.661	.606	.781	.425
4	.365	.579	.504	.634	.171
5	.259	.293	.342	.582	.161
6	.264	.242	.315	.277	.121
7	.224	.186	.263	.225	.104
8	.145	.149	.317	.364	.024
9	.120	.134	.162	.152	-.012
10	.172	.192	.165	.188	.021
11	.219	.188	.234	.142	-.031
12	.199	.250	.191	.081	-.031
13	.171	.211	.181	.064	-.012
14	.271	.208	.213	.129	-.042
15	.167	.153	.122	.040	-.047
16	.207	.145	.129	-.055	
17	.175	.187	.169	.021	
18	.181	.174	.179	.003	
19	.059	.117	.066	-.012	
c_n	0.225	0.253	0.270	0.240	0.160
c_m	-.0360	-.0293	-.0268	.0059	.0165

$C_N' = 0.231$ $\quad x'_{cp} = 32.2$
$C_m' = -.0165$ $\quad y'_{cp} = 41.3$
$C_b' = .095$

[redacted]

[redacted]

TABLE XIV.- Continued.

$[M \approx 1.15]$

(g) $M = 1.15$ $\alpha = 4.4^\circ$
$C_{N_A} = 0.23$ $\delta_{a_L} = 0.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	0.864	0.926	1.067	1.144	0.842
2	.556	.798	.822	.920	.783
3	.541	.727	.720	.847	.508
4	.464	.661	.586	.734	.253
5	.361	.380	.450	.647	.209
6	.315	.313	.411	.363	.165
7	.286	.257	.382	.284	.150
8	.188	.197	.374	.464	.111
9	.170	.197	.223	.257	.039
10	.230	.246	.218	.239	.045
11	.212	.259	.276	.222	-.009
12	.187	.316	.278	.122	-.006
13	.208	.254	.232	.097	-.021
14	.303	.250	.269	.173	-.030
15	.208	.162	.158	.075	-.046
16	.227	.177	.156	-.024	
17	.200	.198	.184	.042	
18	.213	.210	.200	.034	
19	.083	.138	.103	-.015	
c_n	0.270	0.310	0.330	0.300	0.210
c_m	-.0397	-.0369	-.0364	-.0022	.0110

$C_N' = 0.285$ $x'_{cp} = 33.3$
$C_m' = -.0236$ $y'_{cp} = 41.8$
$C_b' = .119$

(h) $M = 1.15$ $\alpha = 5.4^\circ$
$C_{N_A} = 0.32$ $\delta_{a_L} = 0.4^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.008	1.077	1.198	1.262	0.957
2	.704	.961	.929	1.036	.874
3	.646	.847	.852	.986	.629
4	.582	.806	.710	.872	.370
5	.489	.556	.568	.757	.302
6	.428	.404	.541	.464	.229
7	.363	.359	.511	.433	.213
8	.278	.269	.529	.579	.182
9	.263	.278	.310	.353	.129
10	.316	.348	.337	.388	.118
11	.376	.354	.410	.381	.089
12	.333	.391	.358	.229	.091
13	.258	.305	.309	.197	.044
14	.359	.331	.338	.236	.045
15	.254	.198	.224	.102	.009
16	.265	.202	.188	.018	
17	.243	.269	.210	.063	
18	.252	.252	.214	.055	
19	.112	.192	.168	.000	
c_n	0.361	0.397	0.426	0.396	0.298
c_m	-.0537	-.0480	-.0502	-.0171	-.0061

$C_N' = 0.373$ $x'_{cp} = 34.7$
$C_m' = -.0362$ $y'_{cp} = 42.2$
$C_b' = .158$

TABLE XIV.- Continued.

[M ≈ 1.15]

(i) M = 1.15 $\alpha = 5.8^\circ$
$C_{N_A} = 0.37$ $\delta_{a_L} = 0.5^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.078	1.146	1.235	1.299	1.011
2	.765	1.034	1.005	1.094	.912
3	.701	.905	.895	1.032	.669
4	.645	.861	.781	.935	.432
5	.564	.647	.623	.807	.336
6	.468	.474	.604	.489	.272
7	.424	.412	.556	.536	.255
8	.338	.307	.607	.612	.222
9	.318	.316	.369	.399	.164
10	.364	.412	.394	.452	.150
11	.420	.415	.474	.452	.143
12	.366	.431	.395	.355	.143
13	.292	.318	.344	.263	.112
14	.390	.363	.364	.258	.123
15	.268	.211	.238	.120	.068
16	.287	.216	.217	.030	
17	.263	.310	.227	.077	
18	.277	.277	.231	.073	
19	.129	.217	.180	.012	
c_n	0.404	0.442	0.473	0.444	0.344
c_m	-.0597	-.0539	-.0569	-.0269	-.0182

$C_N' = 0.418$ $x'_{cp} = 35.4$
$C_m' = -.0433$ $y'_{cp} = 42.4$
$C_b' = .177$

(j) M = 1.15 $\alpha = 6.3^\circ$
$C_{N_A} = 0.42$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.163	1.224	1.308	1.364	1.056
2	.840	1.096	1.073	1.164	.973
3	.763	.990	.965	1.093	.731
4	.710	.911	.862	1.006	.467
5	.629	.729	.680	.863	.384
6	.522	.529	.672	.563	.306
7	.474	.470	.618	.579	.300
8	.400	.391	.656	.659	.267
9	.383	.358	.489	.444	.217
10	.424	.463	.476	.509	.192
11	.466	.484	.540	.540	.188
12	.409	.473	.428	.440	.194
13	.321	.339	.382	.353	.132
14	.408	.396	.397	.267	.165
15	.291	.235	.274	.148	.123
16	.305	.236	.255	.048	
17	.288	.327	.257	.101	
18	.291	.310	.251	.091	
19	.150	.247	.192	.021	
c_n	0.450	0.491	0.529	0.495	0.391
c_m	-.0652	-.0610	-.0656	-.0353	-.0286

$C_N' = 0.466$ $x'_{cp} = 35.9$
$C_m' = -.0506$ $y'_{cp} = 42.5$
$C_b' = .198$

TABLE XIV.- Continued.

[M ≈ 1.15]

(k) M = 1.15 $\alpha = 6.9^\circ$
$C_{N_A} = 0.46$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.262	1.299	1.371	1.426	1.127
2	.930	1.175	1.147	1.228	1.028
3	.819	1.065	1.029	1.156	.780
4	.769	.963	.926	1.063	.529
5	.685	.801	.743	.926	.431
6	.583	.603	.736	.635	.355
7	.527	.524	.676	.639	.341
8	.484	.430	.712	.713	.349
9	.431	.416	.551	.490	.291
10	.480	.533	.567	.573	.233
11	.511	.553	.601	.652	.218
12	.457	.505	.471	.492	.199
13	.344	.353	.405	.409	.155
14	.439	.428	.440	.319	.182
15	.317	.246	.303	.190	.156
16	.337	.273	.296	.078	
17	.315	.356	.268	.130	
18	.316	.345	.274	.103	
19	.167	.273	.201	.018	
c_n	0.500	0.539	0.582	0.547	0.439
c_m	−.0720	−.0682	−.0748	−.0446	−.0379

$C_N' = 0.514$ $x'_{cp} = 36.3$
$C_m' = -.0583$ $y'_{cp} = 42.6$
$C_b' = .219$

(l) M = 1.15 $\alpha = 7.8^\circ$
$C_{N_A} = 0.52$ $\delta_{a_L} = 0.6^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.411	1.428	1.472	1.539	1.231
2	1.034	1.295	1.271	1.330	1.140
3	.947	1.205	1.134	1.265	.893
4	.883	1.069	1.045	1.158	.616
5	.801	.902	.831	1.017	.514
6	.680	.789	.846	.744	.453
7	.646	.621	.769	.740	.474
8	.577	.537	.804	.796	.407
9	.543	.569	.713	.639	.356
10	.586	.635	.746	.709	.257
11	.588	.618	.675	.712	.245
12	.511	.558	.522	.562	.226
13	.387	.404	.464	.475	.193
14	.477	.475	.473	.396	.230
15	.366	.279	.365	.279	.190
16	.372	.305	.346	.155	
17	.361	.397	.324	.183	
18	.359	.411	.312	.157	
19	.190	.320	.197	.030	
c_n	0.578	0.626	0.671	0.637	0.521
c_m	−.0823	−.0792	−.0882	−.0610	−.0500

$C_N' = 0.598$ $x'_{cp} = 36.8$
$C_m' = -.0703$ $y'_{cp} = 42.7$
$C_b' = .255$

TABLE XIV.- Continued.

[$M \approx 1.15$]

(m) $M \approx 1.15$ $\alpha = 8.2^\circ$
$C_{N_A} \approx 0.56$ $\delta_{a_L} = 0.7^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.485	1.483	1.538	1.581	1.290
2	1.099	1.353	1.316	1.389	1.179
3	1.007	1.256	1.202	1.316	.933
4	.893	1.121	1.094	1.222	.661
5	.860	.962	.893	1.063	.563
6	.721	.858	.886	.792	.522
7	.683	.693	.834	.788	.509
8	.633	.587	.848	.857	.436
9	.615	.633	.765	.703	.378
10	.622	.657	.800	.740	.268
11	.617	.660	.715	.749	.263
12	.539	.587	.553	.599	.250
13	.399	.427	.492	.500	.216
14	.497	.486	.499	.415	.250
15	.383	.310	.388	.306	.195
16	.394	.321	.383	.200	
17	.381	.425	.356	.212	
18	.367	.431	.338	.178	
19	.195	.337	.184	.033	
c_n	0.611	0.664	0.711	0.677	0.556
c_m	−.0867	−.0835	−.0951	−.0674	−.0546

$C_N' = 0.634$ $x'_{cp} = 36.9$
$C_m' = -.0752$ $y'_{cp} = 42.8$
$C_b' = .271$

(n) $M = 1.15$ $\alpha = 8.9^\circ$
$C_{N_A} = 0.60$ $\delta_{a_L} = 0.8^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.575	1.558	1.604	1.659	1.347
2	1.213	1.426	1.379	1.451	1.243
3	1.091	1.337	1.279	1.377	.990
4	.993	1.194	1.167	1.284	.729
5	.921	1.034	.964	1.127	.621
6	.792	.935	.953	.864	.572
7	.739	.781	.906	.860	.564
8	.688	.667	.908	.907	.466
9	.685	.703	.827	.777	.415
10	.669	.709	.858	.808	.290
11	.658	.699	.785	.791	.290
12	.572	.618	.590	.668	.260
13	.432	.455	.541	.532	.242
14	.519	.511	.539	.443	.263
15	.410	.341	.416	.322	.242
16	.410	.340	.420	.233	
17	.404	.453	.383	.289	
18	.402	.459	.374	.230	
19	.204	.361	.179	.058	
c_n	0.661	0.714	0.762	0.731	0.602
c_m	−.0919	−.0895	−.1037	−.0770	−.0617

$C_N' = 0.683$ $x'_{cp} = 37.0$
$C_m' = -.0820$ $y'_{cp} = 42.8$
$C_b' = .293$

TABLE XIV.- Continued.

$[M \approx 1.15]$

(o) $M = 1.15$ $\alpha = 9.4^\circ$
$C_{N_A} = 0.66$ $\delta_{a_L} = 0.9^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.645	1.636	1.678	1.717	1.405
2	1.329	1.508	1.452	1.506	1.285
3	1.169	1.410	1.345	1.451	1.056
4	1.074	1.280	1.241	1.352	.790
5	.994	1.112	1.018	1.184	.693
6	.862	1.002	1.014	.938	.619
7	.800	.909	.985	.922	.640
8	.769	.735	.984	.986	.510
9	.769	.769	.902	.839	.453
10	.721	.772	.910	.873	.311
11	.698	.757	.866	.836	.317
12	.618	.660	.649	.703	.275
13	.466	.488	.582	.582	.266
14	.548	.550	.585	.472	.299
15	.448	.376	.449	.349	.254
16	.433	.360	.458	.266	
17	.425	.489	.437	.330	
18	.434	.495	.409	.296	
19	.219	.379	.169	.109	
c_n	0.715	0.770	0.819	0.786	0.654
c_m	-.0987	-.0972	-.1139	-.0867	-.0693

$C_N' = 0.737$ $x'_{cp} = 37.2$
$C_m' = -.0898$ $y'_{cp} = 42.8$
$C_b' = .315$

(p) $M = 1.14$ $\alpha = 10.2^\circ$
$C_{N_A} = 0.72$ $\delta_{a_L} = 1.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.719	1.721	1.759	1.786	1.478
2	1.413	1.601	1.540	1.600	1.381
3	1.273	1.515	1.423	1.536	1.138
4	1.151	1.405	1.318	1.434	.862
5	1.090	1.201	1.094	1.279	.791
6	.955	1.097	1.097	1.027	.679
7	.897	1.041	1.074	1.008	.709
8	.866	.830	1.068	1.065	.548
9	.855	.843	.974	.922	.506
10	.798	.843	.990	.938	.343
11	.765	.819	.937	.906	.357
12	.672	.723	.724	.767	.314
13	.495	.542	.647	.642	.312
14	.586	.577	.635	.513	.337
15	.477	.423	.515	.398	.309
16	.460	.392	.514	.313	
17	.465	.527	.493	.386	
18	.462	.531	.453	.351	
19	.248	.403	.179	.194	
c_n	0.779	0.839	0.887	0.855	0.718
c_m	-.1074	-.1062	-.1272	-.0989	-.0800

$C_N' = 0.802$ $x'_{cp} = 37.4$
$C_m' = -.0997$ $y'_{cp} = 42.8$
$C_b' = .343$

TABLE XIV.- Continued.

[M ≈ 1.15]

(q) $M = 1.14$ $\alpha = 11.2^\circ$
$C_{N_A} = 0.80$ $\delta_{a_L} = 1.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.778	1.803	1.841	1.876	1.575
2	1.492	1.702	1.620	1.671	1.461
3	1.413	1.600	1.528	1.633	1.215
4	1.277	1.498	1.415	1.517	.946
5	1.205	1.298	1.196	1.385	.889
6	1.019	1.183	1.188	1.130	.768
7	.976	1.149	1.171	1.103	.765
8	.957	.923	1.148	1.151	.617
9	.944	.923	1.063	1.008	.546
10	.874	.908	1.045	1.020	.389
11	.816	.877	1.008	.962	.391
12	.723	.775	.829	.840	.348
13	.544	.595	.726	.686	.386
14	.623	.621	.703	.561	.398
15	.510	.463	.573	.430	.367
16	.493	.433	.598	.365	
17	.503	.564	.548	.437	
18	.512	.574	.404	.412	
19	.287	.400	.241	.235	
c_n	0.844	0.905	0.959	0.927	0.787
c_m	-.1170	-.1157	-.1394	-.1111	-.0918

$C_N' = 0.868$ $x'_{cp} = 37.7$
$C_m' = -.1101$ $y'_{cp} = 42.9$
$C_b' = .373$

(r) $M = 1.14$ $\alpha = 12.2^\circ$
$C_{N_A} = 0.86$ $\delta_{a_L} = 1.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.830	1.882	1.909	1.936	1.622
2	1.557	1.781	1.690	1.743	1.521
3	1.523	1.687	1.608	1.697	1.294
4	1.380	1.582	1.498	1.594	1.016
5	1.295	1.377	1.277	1.440	.967
6	1.133	1.283	1.258	1.221	.839
7	1.081	1.224	1.243	1.163	.811
8	1.043	1.015	1.226	1.227	.671
9	1.022	.993	1.130	1.071	.600
10	.953	.972	1.116	1.072	.443
11	.888	.936	1.065	1.018	.443
12	.764	.845	.899	.884	.381
13	.588	.665	.804	.758	.436
14	.659	.660	.767	.597	.437
15	.540	.519	.642	.476	.414
16	.532	.471	.661	.422	
17	.544	.603	.477	.497	
18	.553	.604	.404	.461	
19	.348	.416	.300	.268	
c_n	0.911	0.970	1.022	0.985	0.845
c_m	-.1266	-.1260	-.1505	-.1221	-.1034

$C_N' = 0.929$ $x'_{cp} = 37.9$
$C_m' = -.1198$ $y'_{cp} = 42.8$
$C_b' = .398$

TABLE XIV.- Continued.

$[M \approx 1.15]$

(s) $M = 1.14$ $\alpha = 13.2^\circ$
$C_{N_A} = 0.92$ $\delta_{a_L} = 1.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.900	1.949	1.932	1.987	1.698
2	1.643	1.850	1.780	1.817	1.592
3	1.614	1.764	1.689	1.758	1.357
4	1.470	1.663	1.577	1.659	1.086
5	1.388	1.448	1.365	1.537	1.036
6	1.249	1.354	1.334	1.291	.899
7	1.173	1.298	1.305	1.252	.873
8	1.119	1.121	1.310	1.278	.717
9	1.084	1.074	1.201	1.138	.666
10	1.019	1.013	1.182	1.129	.494
11	.936	1.009	1.129	1.076	.479
12	.803	.904	.952	.946	.420
13	.623	.708	.878	.823	.503
14	.693	.688	.835	.639	.500
15	.581	.561	.703	.519	.465
16	.576	.515	.653	.455	
17	.587	.642	.476	.547	
18	.588	.626	.457	.503	
19	.371	.430	.382	.325	
c_n	0.971	1.028	1.084	1.042	0.906
c_m	-.1348	-.1347	-.1612	-.1327	-.1162

$C_N' = 0.985$
$C_m' = -.1290$
$C_b' = .422$

$x'_{cp} = 38.1$
$y'_{cp} = 42.9$

(t) $M = 1.13$ $\alpha = 13.9^\circ$
$C_{N_A} = 0.96$ $\delta_{a_L} = 1.2^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	1.968	2.010	2.039	2.026	1.749
2	1.739	1.905	1.829	1.880	1.661
3	1.668	1.830	1.763	1.825	1.426
4	1.567	1.733	1.631	1.726	1.153
5	1.472	1.533	1.437	1.589	1.107
6	1.332	1.432	1.406	1.371	.967
7	1.229	1.383	1.394	1.308	.919
8	1.186	1.230	1.359	1.356	.773
9	1.139	1.151	1.266	1.197	.714
10	1.073	1.072	1.235	1.173	.544
11	.977	1.051	1.176	1.123	.542
12	.847	.960	1.007	.994	.467
13	.653	.772	.938	.863	.550
14	.738	.749	.847	.693	.559
15	.602	.585	.679	.549	.504
16	.630	.570	.622	.496	
17	.627	.677	.562	.526	
18	.639	.677	.539	.471	
19	.349	.396	.462	.314	
c_n	1.027	1.089	1.132	1.089	0.962
c_m	-.1435	-.1460	-.1684	-.1385	-.1285

$C_N' = 1.038$
$C_m' = -.1375$
$C_b' = .444$

$x'_{cp} = 38.2$
$y'_{cp} = 42.8$

[redacted]

[redacted]

TABLE XIV.- Continued.

$[M \approx 1.15]$

(u) $M = 1.13$ $\alpha = 14.7^\circ$
$C_{N_A} = 1.00$ $\delta_{a_L} = 1.1^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.027	2.037	2.075	2.066	1.787
2	1.847	1.976	1.885	1.931	1.714
3	1.746	1.885	1.810	1.875	1.483
4	1.656	1.792	1.697	1.778	1.181
5	1.536	1.594	1.493	1.627	1.175
6	1.401	1.490	1.458	1.428	1.009
7	1.297	1.420	1.419	1.365	.963
8	1.234	1.320	1.411	1.406	.806
9	1.178	1.210	1.311	1.232	.759
10	1.100	1.119	1.285	1.226	.589
11	1.000	1.077	1.217	1.159	.587
12	.853	.997	1.017	1.025	.503
13	.685	.806	.882	.909	.591
14	.762	.767	.724	.668	.607
15	.625	.617	.608	.486	.537
16	.650	.584	.631	.428	
17	.655	.638	.607	.459	
18	.677	.643	.589	.418	
19	.288	.391	.517	.340	
c_n	1.065	1.127	1.156	1.110	1.008
c_m	-.1470	-.1487	-.1667	-.1343	-.1387

$C_N' = 1.069$
$C_m' = -.1384$
$C_b' = .457$

$x'_{cp} = 37.9$
$y'_{cp} = 42.7$

(v) $M = 1.12$ $\alpha = 17.0^\circ$
$C_{N_A} = 1.06$ $\delta_{a_L} = 1.0^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.166	2.082	2.133	2.120	1.886
2	1.970	2.081	1.996	2.280	1.793
3	1.845	1.953	1.890	1.960	1.564
4	1.771	1.876	1.780	1.854	1.277
5	1.586	1.684	1.588	1.719	1.234
6	1.489	1.572	1.557	1.516	1.096
7	1.332	1.492	1.504	1.452	1.018
8	1.288	1.409	1.494	1.483	.880
9	1.245	1.291	1.381	1.304	.811
10	1.160	1.196	1.350	1.283	.646
11	1.046	1.147	1.166	1.110	.626
12	.888	1.058	.864	.892	.563
13	.705	.791	.798	.794	.656
14	.793	.684	.736	.596	.652
15	.657	.537	.608	.446	.592
16	.680	.571	.658	.426	
17	.705	.692	.643	.478	
18	.589	.661	.630	.487	
19	.201	.440	.568	.458	
c_n	1.110	1.172	1.186	1.139	1.076
c_m	-.1470	-.1484	-.1631	-.1255	-.1507

$C_N' = 1.109$
$C_m' = -.1368$
$C_b' = .474$

$x'_{cp} = 37.3$
$y'_{cp} = 42.7$

TABLE XIV.- Concluded.

[$M \approx 1.15$]

(w) $M = 1.11$ $\alpha = 17.8^\circ$
$C_{N_A} = 1.13$ $\delta_{a_L} = 0.3^\circ$ up

Orifice	Row				
	1	2	3	4	5
1	2.229	2.147	2.204	2.179	1.993
2	2.005	2.139	2.095	2.346	1.856
3	1.890	2.012	1.969	2.027	1.632
4	1.854	1.938	1.869	1.954	1.339
5	1.629	1.758	1.664	1.793	1.299
6	1.514	1.632	1.632	1.562	1.142
7	1.371	1.534	1.550	1.522	1.088
8	1.322	1.453	1.548	1.530	.907
9	1.296	1.373	1.421	1.255	.867
10	1.228	1.245	1.205	1.106	.659
11	1.173	1.085	1.093	1.024	.654
12	.963	.975	.903	.904	.584
13	.766	.813	.848	.816	.711
14	.815	.742	.757	.651	.675
15	.588	.619	.632	.468	.556
16	.524	.692	.671	.484	
17	.548	.749	.677	.549	
18	.486	.712	.680	.572	
19	.247	.594	.593	.563	
c_n	1.134	1.217	1.206	1.154	1.130
c_m	-.1405	-.1574	-.1626	-.1282	-.1567

$C_N' = 1.141$
$C_m' = -.1402$
$C_b' = .487$

$x'_{cp} = 37.3$
$y'_{cp} = 42.7$

TABLE XV

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 0.71;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(a) $M = 0.70$ $C_{N_A} = -0.11$

$\alpha = 1.4^\circ$
$\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 8.1^\circ$

Orifice	Row				
	1	2	3	4	5
1	-0.492	-0.843	-0.626	-0.788	-0.568
2	-.321	-.231	-.337	-.480	-.148
3	-.217	-.054	-.205	-.177	.041
4	-.057	.178	-.041	-.028	.415
5	.094	.285	.293	.093	.177
6	.081	.193	.240	.284	.111
7	.027	.041	.137	.203	.021
8	.040	.152	.241	.291	-.010
9	.086	.042	.105	.094	-.041
10	.030	.156	.072	.062	-.073
11	.021	-.010	.042	.042	-.032
12	.020	.084	.073	.041	-.010
13	.028	.010	.000	-.042	.010
14	.124	.073	.096	.021	.000
15	.010	.000	-.031	-.064	-.021
16	.031	.024	.051	.010	
17	.021	.052	-.010	.021	
18	-.050	.042	.051	.000	
19	.010	.021	.043	.032	
c_n	0.008	0.055	0.053	0.029	0.002
c_m	-.0125	-.0184	-.0205	-.0144	-.0037

$C_N' = 0.036$
$C_m' = -.0148$
$C_b' = .013$

$x'_{cp} = 65.8$
$y'_{cp} = 37.1$

(b) $M = 0.70$ $C_{N_A} = -0.05$

$\alpha = 1.9^\circ$
$\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 8.1^\circ$

Orifice	Row				
	1	2	3	4	5
1	-0.325	-0.244	-0.149	-0.256	-0.241
2	-.124	-.054	-.209	-.123	-.093
3	-.108	.027	-.081	.027	.095
4	.113	.217	.081	.069	.461
5	.254	.377	.383	.171	.227
6	.161	.246	.330	.363	.160
7	.174	.108	.230	.282	.062
8	.133	.219	.319	.274	-.041
9	.160	.114	.135	.124	.000
10	.059	.186	.112	.103	-.082
11	.106	.000	.113	.063	.000
12	.030	.114	.031	.010	-.021
13	.055	-.021	.041	-.010	-.020
14	.072	.073	.057	-.031	-.041
15	.010	-.020	-.021	-.053	-.011
16	.020	.020	.071	-.031	
17	.011	.051	.010	.061	
18	-.010	.010	.051	-.042	
19	.000	.051	.085	.084	
c_n	0.066	0.105	0.106	0.074	0.046
c_m	-.0105	-.0126	-.0161	-.0027	-.0009

$C_N' = 0.084$
$C_m' = -.0084$
$C_b' = .033$

$x'_{cp} = 35.0$
$y'_{cp} = 39.3$

TABLE XV.- Continued.

$[M \approx 0.71;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(c) $M = 0.70$
$C_{N_A} = 0.02$

$\alpha = 2.6^\circ$
$\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 7.6^\circ$

Orifice	Row				
	1	2	3	4	5
1	−0.041	0.013	0.135	0.040	−0.107
2	.097	.121	−.070	.068	.027
3	.054	.188	.108	.135	.162
4	.226	.326	.175	.192	.512
5	.361	.445	.476	.277	.217
6	.268	.329	.383	.444	.191
7	.200	.189	.366	.350	.052
8	.214	.288	.345	.357	−.020
9	.171	.155	.177	.155	−.031
10	.119	.207	.153	.144	−.062
11	.074	.058	.113	.074	.000
12	.100	.135	.062	.051	−.052
13	.064	.031	.051	−.010	.000
14	.123	.094	.067	.051	.000
15	.010	.000	.010	−.042	−.011
16	.041	.020	.061	−.021	
17	.021	.041	.031	.051	
18	.000	.041	.041	−.021	
19	.010	.031	.075	.063	
c_n	0.127	0.159	0.149	0.134	0.068
c_m	−.0125	−.0136	−.0151	−.0050	.0025

$C_N' = 0.133$
$C_m' = -.0084$
$C_b' = .053$

$x'_{cp} = 31.3$
$y'_{cp} = 39.5$

(d) $M = 0.70$
$C_{N_A} = 0.11$

$\alpha = 3.7^\circ$
$\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 7.4^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.204	0.296	0.365	0.297	0.107
2	.249	.337	.167	.313	.240
3	.269	.390	.285	.337	.216
4	.409	.461	.310	.412	.532
5	.521	.580	.555	.383	.268
6	.362	.397	.529	.538	.201
7	.294	.297	.380	.430	.094
8	.267	.274	.439	.426	.031
9	.246	.176	.281	.196	−.020
10	.159	.238	.163	.154	−.052
11	.117	.116	.175	.126	.010
12	.130	.155	.082	.061	−.042
13	.083	.052	.051	.021	.030
14	.123	.104	.086	.020	−.010
15	.000	.031	−.010	−.021	.011
16	.051	.030	.072	−.052	
17	.043	.041	.021	.071	
18	−.020	.052	.041	−.084	
19	.040	.041	.053	.063	
c_n	0.186	0.211	0.209	0.184	0.117
c_m	−.0104	−.0125	−.0142	.0033	.0011

$C_N' = 0.184$
$C_m' = .0056$
$C_b' = .074$

$x'_{cp} = 28.1$
$y'_{cp} = 40.2$

[redacted]

[redacted]

TABLE XV.- Continued.

$\left[M \approx 0.71;\ \delta_f = 7^\circ \pm 1.5^\circ\right]$

(e) $M = 0.70$
$C_{N_A} = 0.17$

$\alpha = 4.4^\circ$
$\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 7.2^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.555	0.732	0.957	0.901	0.294
2	.538	.537	.403	.503	.339
3	.483	.524	.419	.471	.337
4	.619	.555	.511	.507	.561
5	.653	.659	.620	.566	.309
6	.468	.533	.659	.644	.260
7	.373	.363	.406	.537	.114
8	.333	.424	.557	.507	.041
9	.310	.258	.321	.247	-.010
10	.168	.258	.223	.195	-.082
11	.170	.087	.185	.157	.031
12	.109	.165	.092	.122	-.010
13	.092	.052	.092	-.021	.000
14	.133	.104	.086	.020	.021
15	.050	.010	.000	-.053	-.032
16	.051	.060	.051	.010	
17	.021	.031	.010	-.030	
18	-.030	.052	.041	-.021	
19	.040	.031	.042	.021	
c_n	0.248	0.273	0.283	0.257	0.157
c_m	-.0049	-.0086	-.0082	.0050	.0045

$C_N' = 0.247$
$C_m' = -.0015$
$C_b' = .101$

$x'_{cp} = 25.6$
$y'_{cp} = 40.8$

(f) $M = 0.70$
$C_{N_A} = 0.20$

$\alpha = 4.8^\circ$
$\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 7.1^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.636	1.079	1.321	1.170	0.428
2	.676	.510	.556	.829	.412
3	.591	.604	.487	.524	.404
4	.774	.595	.471	.603	.581
5	.706	.740	.725	.579	.319
6	.468	.533	.633	.671	.230
7	.426	.403	.500	.537	.146
8	.347	.383	.530	.548	.061
9	.331	.320	.332	.309	.010
10	.198	.268	.234	.205	-.031
11	.180	.135	.216	.168	.031
12	.109	.176	.092	.122	-.031
13	.092	.083	.092	.010	.030
14	.123	.093	.095	.020	-.051
15	.050	.041	.000	-.063	.042
16	.041	.030	.020	-.021	
17	.021	.061	.020	.000	
18	-.020	.062	.030	-.073	
19	.020	.031	.053	.073	
c_n	0.274	0.295	0.300	0.293	0.189
c_m	-.0022	-.0072	-.0042	.0109	.0018

$C_N' = 0.272$
$C_m' = .0008$
$C_b' = .113$

$x'_{cp} = 24.7$
$y'_{cp} = 41.5$

TABLE XV.- Continued.

$[M \approx 0.71;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(g) $M = 0.70$ $\alpha = 5.9^\circ$
$C_{N_A} = 0.26$ $\delta_{a_L} = 0^\circ$
$\delta_f = 7.0^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.973	1.604	1.750	1.505	1.069
2	1.006	1.341	1.305	1.358	.917
3	.859	.818	.918	1.222	.471
4	.970	.703	.645	.944	.600
5	.772	.806	.738	.763	.370
6	.602	.641	.698	.697	.290
7	.493	.470	.540	.536	.187
8	.386	.479	.609	.589	.051
9	.373	.350	.362	.267	.051
10	.247	.371	.274	.277	-.021
11	.180	.174	.247	.167	.062
12	.179	.207	.133	.162	-.010
13	.110	.073	.082	.000	.050
14	.163	.114	.124	.071	.051
15	.040	.041	-.021	-.053	.000
16	.071	.050	.081	-.021	
17	.032	.041	-.010	-.010	
18	-.020	.052	.061	-.010	
19	.020	.031	.053	.073	
c_n	0.344	0.389	0.382	0.376	0.274
c_m	-.0019	-.0013	-.0027	.0147	.0073

$C_N' = 0.355$ $x'_{cp} = 23.6$
$C_m' = .0050$ $y'_{cp} = 41.8$
$C_b' = .148$

(h) $M = 0.70$ $\alpha = 6.9^\circ$
$C_{N_A} = 0.31$ $\delta_{a_L} = 0.2^\circ$ down
$\delta_f = 6.8^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.226	1.904	2.147	1.713	1.212
2	1.387	1.791	1.632	1.596	1.205
3	1.056	1.256	1.346	1.485	.751
4	1.219	.889	.776	1.350	.568
5	.862	.830	.814	.996	.389
6	.653	.693	.761	.774	.319
7	.557	.495	.659	.587	.238
8	.491	.518	.633	.614	.081
9	.404	.349	.413	.358	.071
10	.266	.349	.303	.255	.010
11	.200	.164	.266	.188	.093
12	.158	.237	.133	.151	.041
13	.137	.124	.102	.041	.020
14	.193	.113	.104	.071	.051
15	.010	.041	.000	-.042	.010
16	.061	.080	.081	.010	
17	.032	.081	.010	.061	
18	-.030	.062	.061	-.041	
19	.020	.030	.063	.052	
c_n	0.405	0.442	0.434	0.437	0.343
c_m	.0048	.0032	.0019	.0206	.0071

$C_N' = 0.410$ $x'_{cp} = 22.7$
$C_m' = .0095$ $y'_{cp} = 42.2$
$C_b' = .173$

TABLE XV.- Continued.

$[M \approx 0.71;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(i) $M = 0.71$ $C_{N_A} = 0.34$

$\alpha = 7.4^\circ$
$\delta_{a_L} = 0.2^\circ$ down
$\delta_f = 6.7^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.375	2.027	2.274	1.791	1.359
2	1.525	2.000	1.837	1.636	1.286
3	1.179	1.523	1.427	1.645	.891
4	1.320	1.055	1.035	1.473	.583
5	.973	.889	.846	1.221	.396
6	.766	- .687	.885	.807	.326
7	.578	.531	.614	.675	.236
8	.539	.540	.680	.581	.150
9	.411	.387	.460	.345	.060
10	.234	.346	.301	.294	.051
11	.230	.200	.294	.207	.062
12	.177	.235	.111	.150	.041
13	.118	.061	.141	.082	.060
14	.161	.123	.075	.030	.010
15	.020	.081	.020	.000	.010
16	.070	.059	.030	- .020	
17	.042	.070	.030	.020	
18	- .020	.092	.020	- .051	
19	.020	- .020	.073	.062	
c_n	0.435	0.473	0.474	0.459	0.378
c_m	.0085	.0056	.0108	.0251	.0092

$C_N{}' = 0.439$
$C_m{}' = .0134$
$C_b{}' = .185$

$x'_{cp} = 21.8$
$y'_{cp} = 42.2$

(j) $M = 0.71$ $C_{N_A} = 0.40$

$\alpha = 8.3^\circ$
$\delta_{a_L} = 0.5^\circ$ down
$\delta_f = 6.5^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.740	2.130	2.461	1.967	1.497
2	1.801	2.148	1.937	1.841	1.462
3	1.397	1.898	1.712	1.795	1.125
4	1.520	1.514	1.412	1.614	.648
5	1.086	.990	1.074	1.318	.465
6	.880	.884	.906	1.027	.344
7	.667	.634	.770	.790	.276
8	.628	.618	.728	.753	.120
9	.503	.425	.468	.394	.100
10	.291	.398	.399	.353	.071
11	.250	.247	.353	.257	.102
12	.166	.264	.091	.229	.010
13	.135	.133	.101	.051	.069
14	.160	.112	.103	.100	.030
15	.040	.080	.030	- .041	.031
16	.080	.049	.090	.030	
17	.042	.090	.010	.010	
18	- .019	.061	.040	- .041	
19	.040	.050	.094	.072	
c_n	0.505	0.552	0.553	0.545	0.443
c_m	.0121	.0106	.0102	.0203	.0088

$C_N{}' = 0.515$
$C_m{}' = .0154$
$C_b{}' = .218$

$x'_{cp} = 22.0$
$y'_{cp} = 42.4$

TABLE XV.- Continued.

$[M \approx 0.71;\ \beta_T = 7^\circ \pm 1.5^\circ]$

(k) $M = 0.71$ $\alpha = 8.7^\circ$
$C_{N_A} = 0.45$ $\delta_{a_L} = 0.4^\circ$ down
$\delta_f = 6.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.966	2.168	2.355	2.033	1.562
2	1.855	2.135	2.046	1.947	1.541
3	1.489	1.990	1.805	1.781	1.138
4	1.589	1.687	1.557	1.735	.698
5	1.138	1.122	1.074	1.434	.475
6	.880	.831	1.009	1.053	.364
7	.719	.647	.770	.843	.286
8	.615	.591	.793	.766	.170
9	.482	.425	.529	.434	.110
10	.330	.385	.379	.292	.081
11	.250	.256	.333	.267	.113
12	.195	.203	.091	.159	.082
13	.126	.092	.181	.091	.049
14	.160	.132	.121	.070	.040
15	.050	.080	.051	-.031	-.010
16	.080	.049	.070	-.020	
17	.042	.070	-.010	.040	
18	-.019	.071	.070	-.051	
19	.040	.030	.063	.082	
c_n	0.526	0.556	0.579	0.550	0.462
c_m	.0132	.0150	.0101	.0284	.0082

$C_N' = 0.526$
$C_m' = .0189$
$C_b' = .223$

$x'_{cp} = 21.4$
$y'_{cp} = 42.4$

(l) $M = 0.71$ $\alpha = 9.7^\circ$
$C_{N_A} = 0.51$ $\delta_{a_L} = 0.3^\circ$ down
$\delta_f = 6.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.546	2.183	2.059	2.157	1.699
2	2.200	2.141	1.831	2.011	1.588
3	1.744	1.923	1.769	2.016	1.313
4	1.801	1.887	1.631	1.832	.860
5	1.362	1.464	1.360	1.622	.609
6	1.022	1.226	1.297	1.191	.487
7	.827	.899	1.020	.986	.338
8	.725	.732	.987	.890	.175
9	.581	.541	.673	.540	.098
10	.340	.492	.495	.431	.049
11	.273	.249	.393	.290	.119
12	.218	.257	.176	.174	.079
13	.167	.079	.117	.109	.096
14	.156	.109	.100	.049	.049
15	.048	.088	.059	.020	.050
16	.087	.067	.097	.000	
17	.041	.078	.010	.068	
18	-.009	.049	.058	-.020	
19	.019	.029	.091	.110	
c_n	0.612	0.652	0.653	0.626	0.534
c_m	.0195	.0141	-.0006	.0238	.0066

$C_N' = 0.607$
$C_m' = .0177$
$C_b' = .256$

$x'_{cp} = 22.1$
$y'_{cp} = 42.1$

TABLE XV.- Continued.

[$M \approx 0.71$; $\delta_f = 7^\circ \pm 1.5^\circ$]

(m) $M = 0.72$ $\alpha = 10.2^\circ$
$C_{N_A} = 0.54$ $\delta_{a_L} = 0^\circ$
$\delta_f = 6.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.662	1.968	1.925	1.921	1.670
2	2.258	2.007	1.630	1.812	1.548
3	1.778	1.791	1.675	1.755	1.313
4	1.878	1.869	1.565	1.711	.824
5	1.399	1.526	1.384	1.507	.652
6	1.076	1.266	1.260	1.230	.511
7	.870	.954	1.138	1.015	.374
8	.756	.842	1.028	.998	.183
9	.616	.644	.755	.633	.145
10	.402	.546	.576	.495	.029
11	.291	.302	.467	.416	.148
12	.273	.293	.185	.230	.069
13	.139	.088	.136	.088	.076
14	.193	.098	.108	.067	.107
15	.029	.087	.088	-.020	.010
16	.086	.057	.087	.029	
17	.030	.087	.039	.058	
18	.000	.049	.086	.030	
19	.019	.010	.090	.079	
c_n	0.649	0.670	0.665	0.639	0.543
c_m	.0170	.0076	-.0101	.0098	.0022

$C_N' = 0.623$ $x'_{cp} = 23.3$
$C_m' = .0108$ $y'_{cp} = 41.9$
$C_b' = .261$

(n) $M = 0.72$ $\alpha = 10.3^\circ$
$C_{N_A} = 0.56$ $\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 6.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.670	1.705	1.878	1.673	1.589
2	2.194	1.683	1.572	1.589	1.555
3	1.670	1.607	1.631	1.521	1.299
4	1.777	1.645	1.497	1.486	.908
5	1.383	1.446	1.344	1.391	.780
6	1.151	1.353	1.221	1.154	.571
7	1.022	1.082	1.100	1.016	.467
8	.947	.998	1.029	.999	.247
9	.739	.810	.795	.712	.201
10	.463	.675	.636	.576	.077
11	.347	.407	.539	.510	.185
12	.270	.348	.259	.398	.097
13	.180	.126	.192	.194	.132
14	.172	.136	.214	.124	.106
15	.066	.105	.125	.069	.069
16	.076	.112	.143	.096	
17	.050	.115	.086	.143	
18	.009	.087	.076	.078	
19	.009	.019	.089	.078	
c_n	0.684	0.701	0.687	0.654	0.595
c_m	.0108	-.0139	-.0254	-.0173	-.0136

$C_N' = 0.651$ $x'_{cp} = 26.2$
$C_m' = -.0077$ $y'_{cp} = 41.9$
$C_b' = .273$

TABLE XV.- Continued.

$[M \approx 0.71;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(o) $M = 0.72$ $\quad \alpha = 11.4^\circ$
$C_{N_A} = 0.62$ $\quad \delta_{a_L} = 0^\circ$
$\delta_f = 6.6^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.796	1.781	1.706	1.777	1.531
2	2.119	1.762	1.500	1.593	1.535
3	1.874	1.637	1.522	1.602	1.368
4	1.821	1.650	1.489	1.581	.922
5	1.426	1.439	1.313	1.384	.757
6	1.270	1.372	1.264	1.236	.624
7	1.116	1.101	1.120	1.049	.513
8	1.017	1.057	1.159	1.122	.284
9	.805	.883	.878	.814	.266
10	.543	.720	.775	.736	.134
11	.414	.540	.632	.556	.213
12	.305	.404	.353	.396	.184
13	.171	.184	.276	.241	.197
14	.228	.203	.248	.189	.134
15	.103	.161	.211	.147	.088
16	.104	.140	.209	.134	
17	.089	.133	.133	.199	
18	.000	.115	.123	.097	
19	.019	-.009	.099	.137	
c_n	0.730	0.746	0.759	0.725	0.628
c_m	.0032	-.0253	-.0520	-.0294	-.0269

$C_N' = 0.703$ $\quad x'_{cp} = 28.0$
$C_m' = -.0210$ $\quad y'_{cp} = 42.2$
$C_b' = .296$

(p) $M = 0.71$ $\quad \alpha = 13.0^\circ$
$C_{N_A} = 0.64$ $\quad \delta_{a_L} = 0.1^\circ$ up
$\delta_f = 6.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.491	1.460	1.583	1.415	1.345
2	1.905	1.413	1.397	1.213	1.300
3	1.615	1.312	1.333	1.250	1.127
4	1.706	1.386	1.301	1.235	.903
5	1.289	1.200	1.127	1.212	.793
6	1.056	1.167	1.090	1.121	.677
7	1.001	.973	.914	1.008	.645
8	.901	1.041	1.033	.991	.487
9	.873	.872	.857	.793	.422
10	.706	.843	.811	.800	.232
11	.587	.608	.686	.719	.352
12	.505	.583	.473	.552	.371
13	.354	.420	.433	.379	.255
14	.355	.312	.358	.325	.309
15	.246	.383	.349	.327	.148
16	.258	.310	.364	.309	
17	.190	.316	.269	.344	
18	.130	.223	.257	.225	
19	.000	.019	.130	.256	
c_n	0.768	0.756	0.745	0.727	0.670
c_m	-.0395	-.0701	-.0775	-.0727	-.0665

$C_N' = 0.713$ $\quad x'_{cp} = 33.5$
$C_m' = -.0607$ $\quad y'_{cp} = 42.1$
$C_b' = .301$

TABLE XV.- Concluded.

$\left[M \approx 0.71;\ \delta_f = 7^\circ \pm 1.5^\circ\right]$

(q) $M = 0.71$ $\alpha = 14.7^\circ$
$C_{N_A} = 0.69$ $\delta_{a_L} = 0.8^\circ$ down
$\delta_f = 6.4^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.396	1.589	1.630	1.460	1.057
2	1.970	1.624	1.416	1.397	1.077
3	1.675	1.521	1.441	1.344	.937
4	1.756	1.520	1.370	1.370	.820
5	1.396	1.408	1.193	1.303	.696
6	1.159	1.339	1.142	1.098	.696
7	1.129	1.101	1.081	.958	.634
8	1.015	1.055	1.009	1.017	.484
9	.915	.923	.858	.833	.428
10	.744	.864	.831	.772	.314
11	.636	.718	.754	.698	.397
12	.492	.640	.498	.550	.386
13	.323	.425	.497	.364	.364
14	.321	.326	.417	.416	.304
15	.269	.350	.383	.322	.231
16	.300	.267	.388	.274	
17	.253	.330	.322	.358	
18	.217	.226	.319	.248	
19	.000	-.019	.101	.229	
c_n	0.808	0.814	0.779	0.748	0.626
c_m	-.0453	-.0676	-.0856	-.0719	-.0830

$C_N' = 0.744$ $x'_{cp} = 33.1$
$C_m' = -.0604$ $y'_{cp} = 41.3$
$C_b' = .307$

(r) $M = 0.70$ $\alpha = 16.4^\circ$
$C_{N_A} = 0.66$ $\delta_{a_L} = 0.6^\circ$ up
$\delta_f = 6.7^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.873	1.222	1.270	1.241	1.427
2	1.499	1.239	1.028	1.162	1.394
3	1.368	1.123	1.053	1.111	1.244
4	1.407	1.145	.918	1.119	.991
5	1.217	1.034	.925	1.038	.742
6	.900	1.037	.887	.967	.693
7	.858	.763	.832	.864	.550
8	.794	.895	.802	.869	.459
9	.790	.743	.727	.712	.373
10	.637	.773	.683	.641	.228
11	.530	.557	.643	.624	.361
12	.430	.556	.444	.526	.290
13	.327	.389	.443	.378	.406
14	.343	.379	.412	.283	.287
15	.330	.392	.407	.284	.253
16	.391	.375	.450	.336	
17	.276	.363	.354	.371	
18	.228	.308	.351	.270	
19	.010	-.020	.112	.222	
c_n	0.683	0.684	0.639	0.649	0.680
c_m	-.0557	-.0797	-.0907	-.0700	-.0637

$C_N' = 0.645$ $x'_{cp} = 35.8$
$C_m' = -.0697$ $y'_{cp} = 42.7$
$C_b' = .275$

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TABLE XVI

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$[M \approx 0.76;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(a) $M = 0.74$ $\quad \alpha = 2.8^\circ$
$C_{N_A} = 0.01$ $\quad \delta_{a_L} = 0^\circ$
$\delta_f = 8.0^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	-0.128	-0.098	0.000	-0.077	-0.127
2	-.039	.076	-.092	.013	.000
3	.051	.178	.077	.089	.154
4	.120	.321	.153	.143	.542
5	.342	.472	.451	.312	.234
6	.216	.311	.388	.420	.181
7	.253	.204	.282	.357	.049
8	.139	.260	.365	.312	.019
9	.162	.137	.226	.147	-.078
10	.085	.147	.116	.117	-.029
11	.101	.073	.156	.060	-.010
12	.038	.098	.039	.038	-.010
13	.044	.020	.049	-.010	-.019
14	.126	.069	.081	.010	.000
15	.010	.000	.010	-.060	-.010
16	.010	.009	.048	-.029	
17	.030	.048	.029	.019	
18	-.009	.049	.029	-.059	
19	.019	.019	.081	.060	
c_n	0.090	0.138	0.141	0.109	0.068
c_m	-.0106	-.0107	-.0156	-.0009	.0031

$C_N' = 0.114$ $\quad x'_{cp} = 30.9$
$C_m' = -.0068$ $\quad y'_{cp} = 40.3$
$C_b' = .046$

(b) $M = 0.74$ $\quad \alpha = 3.0^\circ$
$C_{N_A} = 0.05$ $\quad \delta_{a_L} = 0^\circ$
$\delta_f = 8.0^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	-0.013	0.024	0.102	0.025	-0.063
2	.039	.178	-.039	.077	.076
3	.114	.191	.166	.140	.191
4	.187	.384	.229	.246	.540
5	.404	.484	.512	.312	.234
6	.317	.349	.462	.495	.190
7	.227	.255	.346	.394	.059
8	.227	.298	.339	.363	.029
9	.182	.146	.236	.175	-.068
10	.112	.176	.135	.126	-.039
11	.080	.073	.166	.079	-.020
12	.104	.117	.087	.048	-.020
13	.061	.039	.029	.000	-.019
14	.126	.069	.090	.038	-.010
15	.029	.019	.000	-.050	.040
16	.029	.019	.029	-.019	
17	.010	.058	.029	.029	
18	-.028	.039	.038	-.039	
19	.019	.029	.060	.060	
c_n	0.127	0.165	0.164	0.140	0.083
c_m	-.0117	-.0110	-.0154	-.0027	.0028

$C_N' = 0.141$ $\quad x'_{cp} = 30.0$
$C_m' = -.0070$ $\quad y'_{cp} = 40.2$
$C_b' = .057$

TABLE XVI.- Continued.

[$M \approx 0.76$; $\delta_f = 7^\circ \pm 1.5^\circ$]

(c) $M = 0.74$ $\quad \alpha = 3.7^\circ$
$C_{N_A} = 0.11$ $\quad \delta_{a_L} = 0^\circ$
$\delta_f = 7.8^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.179	0.194	0.267	0.203	0.076
2	.183	.254	.105	.257	.138
3	.203	.355	.294	.267	.255
4	.346	.435	.280	.311	.549
5	.541	.597	.598	.373	.302
6	.354	.439	.511	.608	.180
7	.315	.292	.422	.418	.118
8	.264	.336	.426	.479	.010
9	.232	.205	.255	.243	-.058
10	.140	.224	.173	.136	-.068
11	.130	.119	.166	.129	.030
12	.075	.127	.058	.048	-.020
13	.069	.079	.087	.010	-.010
14	.125	.059	.090	.019	-.010
15	.029	.048	.000	-.040	.000
16	.019	.019	.039	-.049	
17	.030	.068	.019	.019	
18	-.019	.029	.019	-.079	
19	.010	.019	.030	.089	
c_n	0.169	0.206	0.194	0.183	0.116
c_m	-.0083	-.0110	-.0125	.0022	.0023

$C_N' = 0.178$ $\quad x'_{cp} = 27.8$
$C_m' = -.0049$ $\quad y'_{cp} = 40.7$
$C_b' = .073$

(d) $M = 0.75$ $\quad \alpha = 4.4^\circ$
$C_{N_A} = 0.16$ $\quad \delta_{a_L} = 0.1^\circ$ down
$\delta_f = 7.6^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.355	0.397	0.530	0.542	0.226
2	.401	.428	.247	.382	.249
3	.365	.490	.418	.441	.316
4	.488	.545	.403	.423	.591
5	.649	.680	.692	.506	.299
6	.439	.499	.617	.716	.225
7	.387	.340	.519	.515	.117
8	.287	.397	.496	.513	.029
9	.280	.261	.291	.222	-.019
10	.176	.261	.200	.192	-.019
11	.149	.100	.183	.108	.049
12	.084	.165	.115	.085	-.010
13	.095	.058	.067	.029	.000
14	.115	.097	.089	.038	.000
15	.000	.000	.000	-.030	.000
16	.038	.047	.086	-.010	
17	.020	.048	.029	.019	
18	-.028	.039	.038	-.059	
19	.009	.038	.050	.059	
c_n	0.213	0.253	0.252	0.236	0.149
c_m	-.0050	-.0109	-.0147	.0022	.0011

$C_N' = 0.225$ $\quad x'_{cp} = 27.1$
$C_m' = -.0046$ $\quad y'_{cp} = 41.1$
$C_b' = .093$

TABLE XVI.- Continued.

$[M \approx 0.76;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(e) $M = 0.75$
$C_{N_A} = 0.19$

$\alpha = 4.9^\circ$
$\delta_{a_L} = 0^\circ$
$\delta_f = 7.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.494	0.709	0.972	0.919	0.313
2	.504	.490	.364	.522	.336
3	.490	.515	.494	.478	.379
4	.606	.608	.466	.539	.656
5	.686	.718	.753	.567	.318
6	.526	.601	.691	.778	.253
7	.424	.403	.544	.565	.107
8	.374	.461	.521	.500	.057
9	.300	.290	.310	.270	-.019
10	.204	.222	.247	.192	.019
11	.159	.163	.212	.147	.039
12	.112	.135	.086	.123	.000
13	.086	.097	.096	.000	.000
14	.143	.097	.098	.067	-.029
15	.019	.048	.010	-.069	.000
16	.048	.019	.048	.000	
17	-.010	.096	.010	.010	
18	-.009	.029	.028	-.020	
19	.028	.038	.030	.020	
c_n	0.256	0.283	0.286	0.275	0.173
c_m	-.0066	-.0072	-.0088	.0040	.0031

$C_N' = 0.258$
$C_m' = -.0017$
$C_b' = .106$

$x'_{cp} = 25.7$
$y'_{cp} = 41.2$

(f) $M = 0.75$
$C_{N_A} = 0.24$

$\alpha = 5.6^\circ$
$\delta_{a_L} = 0.1^\circ$ down
$\delta_f = 7.3^\circ$

Orifice	Row				
	1	2	3	4	5
1	0.765	1.309	1.424	1.346	0.731
2	.729	.896	.837	1.007	.542
3	.659	.622	.626	.797	.425
4	.783	.639	.573	.609	.621
5	.803	.797	.794	.610	.401
6	.607	.620	.733	.795	.250
7	.457	.461	.614	.609	.164
8	.432	.457	.614	.559	.038
9	.356	.325	.355	.286	.038
10	.193	.287	.235	.247	-.038
11	.196	.170	.229	.146	.097
12	.120	.182	.067	.103	.019
13	.111	.087	.123	.038	-.037
14	.151	.096	.071	.028	.038
15	.028	.047	.038	-.039	.029
16	.047	.019	.028	-.038	
17	.000	.057	.028	-.019	
18	-.009	.048	.009	-.058	
19	.019	.028	.039	.068	
c_n	0.306	0.339	0.337	0.324	0.231
c_m	-.0027	-.0028	.0003	.0141	.0033

$C_N' = 0.308$
$C_m' = .0043$
$C_b' = .128$

$x'_{cp} = 23.6$
$y'_{cp} = 41.5$

[redacted]

[redacted]

TABLE XVI.- Continued.

$\left[M \approx 0.76;\ \delta_f = 7^{\circ} \pm 1.5^{\circ}\right]$

(g) $M = 0.75$
$C_{N_A} = 0.31$

$\alpha = 6.4^{\circ}$
$\delta_{a_L} = 0.1^{\circ}$ down
$\delta_f = 7.1^{\circ}$

Orifice	Row				
	1	2	3	4	5
1	1.051	1.686	1.857	1.666	1.175
2	1.110	1.403	1.324	1.470	1.021
3	.894	.919	1.025	1.281	.499
4	.976	.776	.709	.988	.557
5	.887	.883	.841	.791	.409
6	.681	.694	.768	.781	.315
7	.518	.535	.675	.620	.173
8	.468	.519	.600	.608	.075
9	.365	.381	.393	.324	.019
10	.265	.315	.254	.256	.000
11	.186	.161	.247	.174	.058
12	.184	.210	.104	.094	.029
13	.119	.106	.114	.057	.009
14	.160	.086	.088	.019	.019
15	.037	.038	.038	-.029	.010
16	.038	.055	.038	-.029	
17	-.020	.047	.028	.038	
18	-.018	.057	.000	-.048	
19	.019	.019	.088	.068	
c_n	0.368	0.405	0.393	0.391	0.291
c_m	.0008	.0020	.0042	.0218	.0114

$C_N' = 0.370$
$C_m' = .0097$
$C_b' = .154$

$x'_{cp} = 22.4$
$y'_{cp} = 41.7$

(h) $M = 0.76$
$C_{N_A} = 0.36$

$\alpha = 7.0^{\circ}$
$\delta_{a_L} = 0.1^{\circ}$ down
$\delta_f = 7.0^{\circ}$

Orifice	Row				
	1	2	3	4	5
1	1.224	2.003	2.152	2.147	1.383
2	1.503	1.735	1.539	1.894	1.326
3	1.066	1.289	1.310	1.092	.771
4	1.247	.949	.981	.860	.637
5	.984	.956	.949	.765	.446
6	.778	.756	.828	.904	.305
7	.652	.571	.711	.644	.240
8	.541	.556	.673	.670	.094
9	.414	.419	.430	.380	.085
10	.283	.352	.319	.227	.000
11	.215	.232	.285	.213	.077
12	.174	.219	.104	.168	.029
13	.144	.105	.132	.048	.037
14	.113	.086	.070	.056	.009
15	.065	.047	.057	-.078	.039
16	.028	.046	.047	.000	
17	.010	.057	.038	.028	
18	.000	.038	-.009	-.038	
19	.009	.038	.049	.048	
c_n	0.431	0.461	0.457	0.439	0.370
c_m	.0072	.0074	.0082	.0225	.0097

$C_N' = 0.426$
$C_m' = .0135$
$C_b' = .179$

$x'_{cp} = 21.8$
$y'_{cp} = 42.0$

TABLE XVI.- Continued.

[$M \approx 0.76$; $\delta_f = 7^{\circ} \pm 1.5^{\circ}$]

(i) $M = 0.76$ $\alpha = 7.6^{\circ}$
$C_{N_A} = 0.40$ $\delta_{a_L} = 0.6^{\circ}$ down
$\delta_f = 6.9^{\circ}$

Orifice	Row				
	1	2	3	4	5
1	1.418	2.320	2.447	2.454	1.643
2	1.707	2.038	1.883	2.001	1.442
3	1.286	1.358	1.758	1.882	.816
4	1.411	1.051	1.445	1.596	.615
5	1.059	1.069	.581	.927	.437
6	.834	.789	.798	.872	.335
7	.650	.607	.696	.630	.235
8	.578	.556	.658	.668	.129
9	.453	.400	.431	.372	.101
10	.304	.391	.312	.306	.102
11	.220	.210	.288	.189	.113
12	.180	.261	.158	.183	.056
13	.116	.103	.129	.075	.064
14	.157	.131	.120	.129	.019
15	.046	.028	.037	.019	.019
16	.055	.054	.083	.000	
17	.000	.028	.018	.028	
18	.009	.037	.018	- .028	
19	- .009	.028	.096	.028	
c_n	0.472	0.505	0.525	0.519	0.405
c_m	.0087	.0101	.0106	.0259	.0082

$C_N' = 0.480$ $x'_{cp} = 21.8$
$C_m' = .0153$ $y'_{cp} = 42.6$
$C_b' = .204$

(j) $M = 0.76$ $\alpha = 8.2^{\circ}$
$C_{N_A} = 0.45$ $\delta_{a_L} = 0.5^{\circ}$ down
$\delta_f = 6.8^{\circ}$

Orifice	Row				
	1	2	3	4	5
1	1.561	2.435	2.519	2.478	1.962
2	1.802	2.126	2.001	2.151	1.832
3	1.453	1.681	1.886	1.912	.856
4	1.561	1.283	1.612	1.813	.618
5	1.311	1.275	1.144	1.401	.479
6	.969	.867	.955	.935	.340
7	.703	.613	.665	.720	.288
8	.584	.600	.628	.747	.127
9	.439	.415	.436	.387	.082
10	.327	.387	.327	.275	.101
11	.246	.216	.294	.262	.158
12	.187	.240	.110	.208	.065
13	.123	.111	.128	.056	.063
14	.164	.130	.111	.100	.018
15	.027	.046	.046	- .028	.047
16	.073	.045	.055	.028	
17	.019	.055	.027	.055	
18	- .009	.046	.009	- .028	
19	.036	.046	.038	.047	
c_n	0.514	0.546	0.551	0.568	0.456
c_m	.0119	.0147	.0182	.0296	.0102

$C_N' = 0.520$ $x'_{cp} = 21.2$
$C_m' = .0196$ $y'_{cp} = 42.8$
$C_b' = .222$

TABLE XVI.- Continued.

$[M \approx 0.76;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(k) $M = 0.76$ $\quad \alpha = 8.7^\circ$
$C_{N_A} = 0.50$ $\quad \delta_{a_L} = 0.2^\circ$ down
$\delta_f = 6.7^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.700	2.471	2.582	2.528	2.002
2	1.967	2.237	2.092	2.131	1.790
3	1.543	1.950	1.963	1.977	1.045
4	1.681	1.519	1.689	1.782	.678
5	1.306	1.450	1.234	1.501	.550
6	1.156	.912	1.140	1.099	.401
7	.772	.647	.903	.956	.296
8	.653	.598	.732	.916	.118
9	.476	.413	.452	.477	.109
10	.317	.404	.344	.302	.037
11	.245	.215	.321	.187	.158
12	.222	.258	.137	.144	.037
13	.131	.120	.137	.046	.072
14	.127	.129	.093	.018	.028
15	.036	.045	.046	-.056	.038
16	.072	.062	.054	.000	
17	.000	.045	.027	.018	
18	.009	.055	.045	-.046	
19	.036	.018	.085	.047	
c_n	0.556	0.583	0.599	0.592	0.493
c_m	.0148	.0171	.0169	.0379	.0126

$C_N' = 0.555$
$C_m' = .0230$
$C_b' = .236$
$x'_{cp} = 20.9$
$y'_{cp} = 42.6$

(l) $M = 0.76$ $\quad \alpha = 9.4^\circ$
$C_{N_A} = 0.55$ $\quad \delta_{a_L} = 0.6^\circ$ down
$\delta_f = 6.6^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.963	2.551	2.690	2.542	1.811
2	2.123	2.325	2.162	2.150	1.754
3	1.747	2.113	2.068	1.950	1.304
4	1.819	1.749	1.832	1.879	.880
5	1.535	1.726	1.298	1.528	.661
6	1.353	1.104	1.194	1.238	.510
7	.949	.757	1.034	1.097	.347
8	.691	.614	.932	1.072	.179
9	.545	.462	.610	.660	.117
10	.322	.426	.411	.415	.063
11	.279	.263	.326	.286	.137
12	.201	.264	.126	.169	.055
13	.145	.110	.126	.055	.115
14	.135	.146	.084	.045	.054
15	.089	.045	.063	-.037	.065
16	.036	.079	.045	.036	
17	.056	.072	.036	.018	
18	-.017	.055	.045	.018	
19	.027	.018	.065	.018	
c_n	0.610	0.643	0.660	0.665	0.557
c_m	.0206	.0189	.0168	.0268	.0052

$C_N' = 0.616$
$C_m' = .0216$
$C_b' = .264$
$x'_{cp} = 21.5$
$y'_{cp} = 42.9$

TABLE XVI.- Continued.

$[M \approx 0.76;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(m) $M = 0.76$ $\quad \alpha = 9.9^\circ$
$C_{N_A} = 0.59$ $\quad \delta_{a_L} = 0^\circ$
$\delta_f = 6.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.173	2.682	2.767	2.442	1.878
2	2.228	2.380	2.219	2.182	1.751
3	1.803	2.180	2.100	1.982	1.396
4	1.902	1.876	1.723	1.875	.852
5	1.590	1.664	1.527	1.559	.732
6	1.421	1.090	1.226	1.306	.545
7	.924	.802	.973	1.130	.411
8	.702	.769	.884	1.130	.187
9	.515	.525	.664	.749	.143
10	.391	.434	.490	.549	-.027
11	.270	.263	.424	.414	.119
12	.209	.254	.135	.205	.100
13	.145	.109	.108	.091	.053
14	.161	.127	.084	-.036	.090
15	.053	.045	.072	-.037	.009
16	.053	.079	.036	-.009	
17	.047	.045	.018	.027	
18	-.009	.036	.027	-.018	
19	.035	.045	.084	.064	
c_n	0.642	0.670	0.675	0.697	0.584
c_m	.0212	.0215	.0139	.0245	.0076

$C_N' = 0.642$ $\quad x'_{cp} = 21.6$
$C_m' = .0221$ $\quad y'_{cp} = 42.9$
$C_b' = .275$

(n) $M = 0.77$ $\quad \alpha = 10.6^\circ$
$C_{N_A} = 0.62$ $\quad \delta_{a_L} = 0.4^\circ$ down
$\delta_f = 6.7^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.393	1.951	1.863	1.582	1.734
2	2.345	1.925	1.706	1.528	1.702
3	1.844	1.775	1.659	1.408	1.285
4	1.897	1.754	1.501	1.447	.885
5	1.567	1.512	1.336	1.322	.760
6	1.218	1.313	1.200	1.140	.541
7	1.007	1.051	1.056	1.002	.455
8	.904	.869	1.001	1.011	.253
9	.706	.735	.827	.715	.210
10	.501	.646	.706	.564	.115
11	.337	.481	.601	.495	.215
12	.307	.373	.326	.365	.170
13	.166	.178	.290	.195	.173
14	.245	.169	.212	.166	.150
15	.061	.140	.151	.118	.072
16	.148	.163	.201	.133	
17	.091	.149	.114	.183	
18	-.017	.115	.139	.098	
19	.069	-.009	.082	.126	
c_n	0.710	0.722	0.716	0.649	0.611
c_m	.0057	-.0151	-.0366	-.0233	-.0163

$C_N' = 0.666$ $\quad x'_{cp} = 26.7$
$C_m' = -.0113$ $\quad y'_{cp} = 41.6$
$C_b' = .277$

TABLE XVI.- Concluded.

$[M \approx 0.76;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(o) $M = 0.76$ $\quad \alpha = 11.7^\circ$
$C_{N_A} = 0.70$ $\quad \delta_{a_L} = 1.2^\circ$ down
$\delta_f = 6.8^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.453	1.611	1.676	1.467	1.736
2	2.276	1.604	1.552	1.436	1.657
3	1.696	1.477	1.661	1.352	1.332
4	1.754	1.558	1.444	1.389	.980
5	1.363	1.387	1.348	1.312	.822
6	1.184	1.408	1.223	1.164	.688
7	1.088	1.040	1.162	1.049	.581
8	1.076	1.117	1.070	1.012	.349
9	.936	.921	.864	.813	.307
10	.723	.824	.768	.706	.256
11	.592	.631	.628	.630	.331
12	.427	.515	.353	.488	.250
13	.276	.268	.343	.329	.233
14	.263	.249	.262	.297	.212
15	.147	.237	.266	.209	.136
16	.148	.232	.271	.239	
17	.091	.219	.194	.253	
18	.060	.178	.226	.170	
19	.026	.018	.082	.144	
c_n	0.785	0.781	0.750	0.713	0.694
c_m	-.0202	-.0490	-.0534	-.0528	-.0417

$C_N' = 0.725$ $\quad x'_{cp} = 30.4$
$C_m' = -.0391$ $\quad y'_{cp} = 41.8$
$C_b' = .303$

(p) $M = 0.76$ $\quad \alpha = 13.5^\circ$
$C_{N_A} = 0.72$ $\quad \delta_{a_L} = 0.1^\circ$ down
$\delta_f = 7.0^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.462	1.442	1.525	1.557	1.351
2	1.838	1.496	1.331	1.479	1.297
3	1.730	1.333	1.342	1.428	1.138
4	1.728	1.378	1.300	1.360	.758
5	1.334	1.264	1.159	1.249	.699
6	1.072	1.201	1.125	1.016	.636
7	1.056	1.007	.989	.934	.570
8	.940	1.025	.981	.942	.381
9	.930	.898	.884	.815	.373
10	.775	.817	.831	.778	.197
11	.646	.690	.735	.721	.354
12	.494	.540	.509	.556	.308
13	.352	.443	.374	.423	.298
14	.311	.343	.381	.319	.314
15	.237	.364	.341	.303	.183
16	.248	.331	.355	.287	
17	.185	.311	.267	.354	
18	.103	.243	.274	.200	
19	.000	-.018	.111	.210	
c_n	0.779	0.764	0.751	0.732	0.628
c_m	-.0394	-.0710	-.0814	-.0665	-.0595

$C_N' = 0.715$ $\quad x'_{cp} = 33.2$
$C_m' = -.0590$ $\quad y'_{cp} = 41.8$
$C_b' = .299$

TABLE XVII

PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE DOUGLAS X-3 WING

$\left[M \approx 0.80;\ \delta_f = 7^\circ \pm 1.5^\circ\right]$

(a) $M = 0.80$ $\alpha = 2.6^\circ$
$C_{N_A} = 0.00$ $\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 8.8^\circ$

Orifice	Row				
	1	2	3	4	5
1	-0.268	-0.321	-0.221	-0.406	-0.288
2	-.143	.000	-.216	-.094	-.115
3	-.058	.081	-.035	.023	.105
4	.049	.257	.070	.059	1.088
5	.322	.452	.557	.136	.266
6	.219	.341	.409	1.075	.129
7	.172	.197	.373	.312	.081
8	.207	.236	.366	.449	-.026
9	.138	.133	.214	.177	-.079
10	.102	.151	.114	.089	-.044
11	.091	.058	.098	.072	-.027
12	.069	.080	.071	.035	-.054
13	.040	.063	.035	-.018	-.017
14	.123	.089	.066	-.009	-.018
15	.000	.000	-.036	-.091	-.027
16	.009	.026	.035	.000	
17	.009	.009	.018	.000	
18	-.034	.000	.009	-.027	
19	.000	.053	.009	.027	
c_n	0.081	0.123	0.121	0.145	0.073
c_m	-.0128	-.0126	-.0147	-.0039	-.0046

$C_N' = 0.114$ $x'_{cp} = 33.3$
$C_m' = -.0095$ $y'_{cp} = 43.8$
$C_b' = .050$

(b) $M = 0.80$ $\alpha = 3.1^\circ$
$C_{N_A} = 0.05$ $\delta_{a_L} = 0.1^\circ$ up
$\delta_f = 8.7^\circ$

Orifice	Row				
	1	2	3	4	5
1	-0.104	-0.066	0.035	-0.104	-0.149
2	.024	.069	-.119	.012	-.046
3	.069	.195	.127	.150	.127
4	.181	.348	.161	.164	1.105
5	.445	.622	.971	.270	.344
6	.332	.374	.452	1.114	.163
7	.274	.311	.417	.471	.080
8	.262	.305	.397	.422	.000
9	.201	.212	.240	.211	-.044
10	.161	.185	.148	.114	-.053
11	.073	.099	.150	.090	-.036
12	.119	.124	.070	.026	-.045
13	.055	.098	.061	-.018	.017
14	.157	.089	.065	.000	-.018
15	-.035	.026	-.018	-.063	.009
16	.052	.043	.009	-.026	
17	-.009	.026	.044	.000	
18	-.008	.009	-.017	.000	
19	.017	.044	.036	.000	
c_n	0.142	0.176	0.166	0.177	0.105
c_m	-.0156	-.0149	-.0112	-.0001	-.0025

$C_N' = 0.158$ $x'_{cp} = 30.5$
$C_m' = -.0086$ $y'_{cp} = 41.8$
$C_b' = .066$

TABLE XVII.- Continued.

$\left[M \approx 0.80;\ \delta_f = 7^\circ \pm 1.5^\circ\right]$

(c) $M = 0.80$ $\quad \alpha = 3.5^\circ$
$C_{N_A} = 0.09$ $\quad \delta_{a_L} = 0.1^\circ$ up
$\delta_f = 8.6^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.023	0.033	0.138	0.069	−0.046
2	.083	.218	− .036	.081	.057
3	.149	.241	.173	.230	.150
4	.205	.416	.195	.187	1.095
5	.490	.713	1.105	.315	.440
6	.423	.409	.451	1.147	.145
7	.285	.345	.485	.505	.080
8	.319	.328	.431	.410	− .009
9	.219	.229	.248	.194	− .044
10	.127	.212	.174	.140	− .079
11	.127	.107	.158	.090	− .027
12	.077	.150	.088	.061	− .036
13	.078	.080	.070	.000	.017
14	.122	.062	.073	.009	− .018
15	.017	− .061	.009	− .090	− .009
16	.009	.043	.035	− .026	
17	− .009	.009	.044	− .009	
18	− .017	− .009	.000	− .009	
19	.026	.044	.009	.018	
c_n	0.153	0.198	0.193	0.196	0.124
c_m	−.0108	−.0100	−.0134	−.0007	.0048

$C_N' = 0.177$ $\quad x'_{cp} = 28.3$
$C_m' = -.0059$ $\quad y'_{cp} = 42.1$
$C_b' = .075$

(d) $M = 0.80$ $\quad \alpha = 4.2^\circ$
$C_{N_A} = 0.15$ $\quad \delta_{a_L} = 0.1^\circ$ up
$\delta_f = 8.2^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.231	0.220	0.323	0.287	0.103
2	.236	.333	.145	.267	.159
3	.264	.367	.301	.333	.231
4	.397	.486	.299	.363	1.061
5	.661	1.092	1.206	.360	.537
6	.515	.502	.676	1.135	.154
7	.376	.391	.566	.917	.089
8	.387	.410	.499	.504	.026
9	.338	.300	.310	.246	− .017
10	.152	.194	.182	.140	− .079
11	.118	.116	.158	.108	.009
12	.119	.106	.061	.061	− .071
13	.071	.107	.079	− .018	.026
14	.113	.097	.073	− .026	− .026
15	.017	.035	.035	− .072	.027
16	− .009	.017	.026	.009	
17	− .018	.079	.035	− .009	
18	.000	.009	.000	− .009	
19	.000	.061	.009	.009	
c_n	0.212	0.250	0.238	0.236	0.163
c_m	−.0078	−.0084	−.0092	.0045	.0030

$C_N' = 0.223$ $\quad x'_{cp} = 26.3$
$C_m' = -.0029$ $\quad y'_{cp} = 41.5$
$C_b' = .092$

TABLE XVII.- Continued.

[$M \approx 0.80$; $\delta_f = 7^\circ \pm 1.5^\circ$]

(e) $M = 0.80$
$C_{N_A} = 0.21$
$\alpha = 4.9^\circ$
$\delta_{a_L} = 0^\circ$
$\delta_f = 8.1^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.440	0.517	0.704	0.657	0.252
2	.449	.506	.298	.419	.262
3	.483	.506	.463	.461	.312
4	.579	.580	.403	.458	1.123
5	.799	1.209	1.231	.485	.846
6	.596	.596	1.050	1.149	.154
7	.479	.507	.660	1.068	.125
8	.468	.457	.566	.692	.035
9	.329	.300	.320	.238	-.035
10	.212	.265	.235	.158	-.026
11	.172	.141	.185	.153	-.018
12	.153	.204	.097	.104	-.018
13	.094	.062	.061	-.027	.017
14	.157	.089	.090	.000	.009
15	.009	-.009	-.009	-.081	-.009
16	.026	.060	.079	.000	
17	-.009	.026	.009	-.009	
18	-.025	-.009	.000	.000	
19	.017	.061	.018	.009	
c_n	0.274	0.307	0.306	0.294	0.224
c_m	-.0083	-.0076	-.0088	-.0057	.0032

$C_N' = 0.281$
$C_m' = -.0021$
$C_b' = .118$

$x'_{cp} = 25.7$
$y'_{cp} = 41.8$

(f) $M = 0.80$
$C_{N_A} = 0.26$
$\alpha = 5.6^\circ$
$\delta_{a_L} = 0^\circ$
$\delta_f = 7.8^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	0.694	1.020	1.209	1.160	0.503
2	.672	.665	.605	.766	.420
3	.619	.619	.543	.574	.403
4	.734	.624	.528	.573	1.077
5	.865	1.206	1.228	.585	1.020
6	.697	.700	1.136	1.168	.188
7	.512	.528	.831	1.100	.124
8	.535	.538	.679	1.030	.052
9	.392	.370	.336	.299	-.017
10	.237	.238	.295	.167	.000
11	.172	.190	.211	.134	-.009
12	.161	.168	.114	.095	-.044
13	.110	.142	.070	.027	.052
14	.166	.115	.073	.009	-.009
15	.009	.044	.018	-.054	.027
16	.035	.026	.035	-.018	
17	.018	.044	.017	.000	
18	-.034	-.026	-.017	-.027	
19	.000	.087	-.018	.027	
c_n	0.325	0.350	0.368	0.373	0.277
c_m	-.0051	-.0033	-.0021	.0110	.0030

$C_N' = 0.336$
$C_m' = .0016$
$C_b' = .144$

$x'_{cp} = 24.5$
$y'_{cp} = 42.8$

[redacted]

[redacted]

TABLE XVII.- Continued.

[M ≈ 0.80; δ_f = 7° ± 1.5°]

(g) M = 0.80 α = 5.9°
C_{N_A} = 0.29 δ_{a_L} = 0°
δ_f = 7.8°

Orifice	Row				
	1	2	3	4	5
1	0.786	1.272	1.336	1.252	0.708
2	.766	.826	.795	.604	.568
3	.654	.654	.658	.689	.403
4	.866	.670	.563	.620	1.043
5	.945	1.241	1.250	.663	1.011
6	.754	.723	1.126	1.203	.197
7	.535	.563	.970	1.089	.133
8	.535	.549	.713	1.123	.069
9	.374	.361	.354	.272	-.017
10	.262	.308	.278	.202	-.009
11	.154	.182	.193	.161	-.009
12	.178	.168	.123	.087	.000
13	.078	.089	.079	.035	.043
14	.166	.089	.098	.017	-.009
15	-.026	.009	.009	-.036	.018
16	.043	.043	.035	-.018	
17	.009	.017	.000	.009	
18	-.034	.000	.000	-.018	
19	.009	.061	.036	.045	
c_n	0.349	0.376	0.391	0.394	0.295
c_m	-.0017	.0000	-.0013	.0090	.0055

C_N' = 0.358 x'_{cp} = 24.0
C_m' = .0036 y'_{cp} = 42.7
C_b' = .153

(h) M = 0.80 α = 6.4°
C_{N_A} = 0.32 δ_{a_L} = 0.1° down
δ_f = 7.6°

Orifice	Row				
	1	2	3	4	5
1	0.935	1.589	1.783	1.767	0.582
2	1.060	.791	.747	.916	.454
3	.779	.756	.611	.665	.460
4	.985	.762	.608	.655	1.111
5	.955	1.297	1.328	.652	1.037
6	.834	.827	1.114	1.282	.256
7	.580	.654	1.119	1.156	.133
8	.626	.561	.780	1.158	.078
9	.428	.396	.354	.316	.009
10	.296	.299	.286	.202	.035
11	.208	.198	.228	.179	.027
12	.178	.212	.114	.095	.009
13	.110	.089	.087	.071	.034
14	.148	.106	.081	.009	.009
15	.009	.000	.026	-.054	.000
16	.035	.051	.009	.000	
17	-.009	.009	.035	.009	
18	-.034	-.009	-.009	-.027	
19	.000	.035	.036	.027	
c_n	0.397	0.409	0.420	0.438	0.306
c_m	.0004	.0016	.0032	.0142	.0008

C_N' = 0.391 x'_{cp} = 23.4
C_m' = .0064 y'_{cp} = 42.4
C_b' = .166

[redacted]

TABLE XVII.- Continued.

$[M \approx 0.80;\ \delta_f = 7^\circ \pm 1.5^\circ]$

(i) $M = 0.80$
$C_{N_A} = 0.36$

$\alpha = 7.0^\circ$
$\delta_{a_L} = 0.2^\circ$ down
$\delta_f = 7.5^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.099	1.796	1.964	1.915	1.389
2	1.306	1.192	1.408	1.582	1.237
3	.990	.900	1.257	1.430	.361
4	1.073	.816	.743	1.079	1.023
5	1.094	1.329	1.347	.728	.966
6	.908	.972	1.138	1.215	.252
7	.681	.856	1.132	1.112	.183
8	.681	.573	1.032	1.044	.111
9	.456	.354	.365	.328	.009
10	.265	.328	.264	.224	.043
11	.222	.186	.215	.193	.061
12	.142	.199	.129	.085	.017
13	.108	.061	.103	.061	.059
14	.162	.130	.096	.017	.017
15	.008	.000	.017	-.009	.009
16	.026	.084	.051	-.017	
17	.000	.017	.017	.017	
18	-.017	.017	.017	-.017	
19	.025	.034	.018	.018	
c_n	0.430	0.458	0.485	0.485	0.371
c_m	.0051	.0042	.0050	.0244	.0092

$C_N' = 0.440$
$C_m' = .0107$
$C_b' = .189$

$x'_{cp} = 22.6$
$y'_{cp} = 42.8$

(j) $M = 0.80$
$C_{N_A} = 0.41$

$\alpha = 7.6^\circ$
$\delta_{a_L} = 0^\circ$
$\delta_f = 7.4^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.165	1.975	2.028	2.068	1.565
2	1.499	1.784	1.614	1.715	1.434
3	1.122	1.190	1.424	1.528	1.070
4	1.294	.950	1.315	1.397	1.004
5	1.181	1.293	1.344	1.188	.611
6	1.051	1.118	1.267	1.379	.301
7	.835	.933	1.153	1.289	.191
8	.858	.629	1.174	.813	.136
9	.464	.405	.381	.353	.034
10	.289	.310	.280	.189	.086
11	.195	.202	.224	.193	.061
12	.141	.173	.137	.119	.009
13	.107	.095	.086	.043	.084
14	.154	.078	.103	.034	.026
15	.025	.026	.009	-.044	.035
16	.025	.067	.068	-.017	
17	-.036	.034	.034	-.017	
18	.017	-.017	.008	-.009	
19	-.008	.043	.035	.009	
c_n	0.489	0.504	0.571	0.519	0.449
c_m	.0078	.0146	.0107	.0326	.0164

$C_N' = 0.493$
$C_m' = .0185$
$C_b' = .212$

$x'_{cp} = 21.2$
$y'_{cp} = 42.9$

[redacted]

TABLE XVII.- Continued.

[$M \approx 0.80$; $\delta_r = 7^\circ \pm 1.5^\circ$]

(k) $M = 0.80$ $\alpha = 8.3^\circ$
$C_{N_A} = 0.46$ $\delta_{a_L} = 0^\circ$
$\delta_r = 7.2^\circ$

Orifice	Row				
	1	2	3	4	5.
1	1.284	2.105	2.153	2.205	1.670
2	1.711	1.911	1.792	1.855	1.561
3	1.274	1.542	1.620	1.712	1.256
4	1.453	1.250	1.444	1.573	1.066
5	1.264	1.388	1.580	1.315	.719
6	1.147	1.170	1.536	1.540	.358
7	.998	1.030	1.305	.926	.251
8	.932	.923	1.257	.935	.127
9	.533	.429	.483	.608	.042
10	.288	.300	.254	.453	.026
11	.212	.201	.214	.201	.104
12	.166	.172	.103	.067	.061
13	.092	.130	.102	.000	.059
14	.144	.086	.071	-.085	.034
15	.008	.051	.017	-.070	.026
16	.059	.050	.059	-.017	
17	.009	.034	.034	-.042	
18	-.016	.034	.008	-.035	
19	-.008	.042	.053	.017	
c_n	0.536	0.576	0.620	0.593	0.509
c_m	.0113	.0157	.0173	.0364	.0168

$C_N' = 0.556$ $x'_{cp} = 21.2$
$C_m' = .0212$ $y'_{cp} = 43.0$
$C_b' = .239$

(l) $M = 0.80$ $\alpha = 8.6^\circ$
$C_{N_A} = 0.49$ $\delta_{a_L} = 0^\circ$
$\delta_r = 7.2^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.323	2.117	2.233	2.240	1.718
2	1.726	1.880	1.819	1.937	1.620
3	1.346	1.647	1.680	1.771	1.352
4	1.528	1.401	1.471	1.635	1.028
5	1.292	1.404	1.617	1.374	.733
6	1.208	1.210	1.606	1.589	.423
7	1.038	1.070	1.478	.922	.284
8	1.005	1.055	1.164	.942	.135
9	.558	.444	.567	.691	.085
10	.303	.316	.278	.476	.034
11	.246	.208	.222	.321	.130
12	.148	.180	.094	.101	.086
13	.114	.077	.076	.034	.075
14	.118	.094	.063	-.093	.026
15	.042	.017	.034	-.096	.026
16	.034	.050	.025	-.034	
17	.009	.042	.017	.025	
18	-.016	.017	.008	-.052	
19	.025	.042	.044	.052	
c_n	0.558	0.602	0.631	0.625	0.540
c_m	.0126	.0174	.0200	.0345	.0125

$C_N' = 0.580$ $x'_{cp} = 21.3$
$C_m' = .0217$ $y'_{cp} = 43.2$
$C_b' = .250$

TABLE XVII.- Continued.

$\left[M \approx 0.80;\ \delta_r = 7^\circ \pm 1.5^\circ\right]$

(m) $M = 0.80$
$C_{N_A} = 0.51$

$\alpha = 8.6^\circ$
$\delta_{a_L} = 0.2^\circ$ down
$\delta_r = 7.2^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.342	2.147	2.243	2.260	1.743
2	1.787	1.981	1.800	1.916	1.625
3	1.365	1.695	1.717	1.785	1.337
4	1.558	1.486	1.477	1.662	.993
5	1.322	1.400	1.621	1.424	.709
6	1.250	1.253	1.632	1.528	.459
7	1.081	1.036	1.474	.946	.341
8	1.016	1.077	1.206	.966	.142
9	.595	.507	.620	.675	.092
10	.333	.321	.316	.522	.059
11	.234	.230	.228	.369	.128
12	.179	.186	.076	.141	.077
13	.105	.102	.067	.042	.091
14	.142	.068	.070	-.108	.067
15	.025	.042	.025	-.061	.035
16	.050	.033	.042	-.051	
17	.017	.059	.017	.008	
18	-.016	.008	.017	-.051	
19	.025	.017	.061	.052	
c_n	0.579	0.618	0.644	0.635	0.552
c_m	.0107	.0191	.0177	.0322	.0081

$C_N{}' = 0.593$
$C_m{}' = .0214$
$C_b{}' = .255$

$x'_{cp} = 21.4$
$y'_{cp} = 43.0$

(n) $M = 0.81$
$C_{N_A} = 0.56$

$\alpha = 9.4^\circ$
$\delta_{a_L} = 0.2^\circ$ down
$\delta_r = 7.1^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	1.550	2.264	2.377	2.349	1.859
2	1.985	2.084	1.874	2.010	1.708
3	1.506	1.833	1.835	1.857	1.380
4	1.670	1.627	1.574	1.770	.952
5	1.473	1.595	1.736	1.540	.703
6	1.305	1.331	1.661	1.504	.512
7	1.170	1.191	1.329	1.014	.389
8	1.115	1.157	1.066	1.024	.223
9	.651	.595	.842	.803	.083
10	.338	.385	.602	.601	.075
11	.276	.251	.393	.417	.110
12	.210	.218	.083	.222	.110
13	.104	.110	.058	.059	.065
14	.141	.101	.054	-.058	.075
15	.057	.041	-.008	-.069	.017
16	.050	.049	.017	-.025	
17	.009	.066	.008	.025	
18	-.016	.025	.025	-.008	
19	.025	.041	.078	.043	
c_n	0.629	0.682	0.702	0.691	0.579
c_m	.0122	.0161	.0108	.0230	.0079

$C_N{}' = 0.647$
$C_m{}' = .0182$
$C_b{}' = .277$

$x'_{cp} = 22.2$
$y'_{cp} = 42.8$

[redacted]

[redacted]

TABLE XVII.- Continued.

$\left[M \approx 0.80;\ \delta_f = 7^\circ \pm 1.5^\circ\right]$

(o) $M = 0.80$
$C_{N_A} = 0.61$

$\alpha = 10.2^\circ$
$\delta_{a_L} = 0.2^\circ$ down
$\delta_f = 7.0^\circ$

Orifice	Row				
	1	2	3	4	5
1	1.897	2.400	2.497	2.436	1.973
2	2.171	2.179	1.993	2.038	1.788
3	1.640	2.003	1.961	1.939	1.414
4	1.812	1.786	1.752	1.785	.894
5	1.573	1.708	1.535	1.521	.717
6	1.437	1.488	1.362	1.308	.566
7	1.333	1.223	1.108	1.066	.486
8	1.223	.864	1.097	1.067	.292
9	.709	.668	.798	.860	.193
10	.430	.524	.649	.740	.067
11	.313	.349	.514	.575	.179
12	.245	.254	.269	.341	.153
13	.128	.128	.159	.161	.099
14	.159	.102	.164	.075	.118
15	.041	.050	.059	.017	.069
16	.075	.049	.117	.042	
17	.044	.067	.042	.108	
18	-.024	.034	.100	.034	
19	.033	.033	.131	.077	
c_n	0.705	0.717	0.757	0.751	0.696
c_m	.0116	.0147	.0118	.0011	.0079

$C_N' = 0.697$
$C_m' = .0082$
$C_b' = .299$

$x'_{cp} = 23.8$
$y'_{cp} = 42.9$

(p) $M = 0.80$
$C_{N_A} = 0.65$

$\alpha = 11.6^\circ$
$\delta_{a_L} = 0.1^\circ$ down
$\delta_f = 7.1^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.267	2.595	2.546	1.381	1.736
2	2.391	2.360	2.146	1.306	1.650
3	1.842	2.195	1.954	1.248	1.240
4	2.012	1.990	1.690	1.249	.880
5	1.664	1.535	1.148	1.179	.795
6	1.583	1.323	1.148	1.102	.617
7	1.532	1.016	.977	.959	.538
8	.909	.877	1.089	.979	.392
9	.640	.694	.894	.828	.294
10	.480	.627	.909	.784	.169
11	.444	.524	.727	.689	.308
12	.376	.442	.557	.549	.282
13	.302	.290	.412	.374	.265
14	.277	.247	.391	.276	.237
15	.166	.210	.322	.252	.173
16	.150	.214	.360	.279	
17	.087	.201	.202	.301	
18	.024	.102	.233	.205	
19	.041	.017	.105	.164	
c_n	0.775	0.796	0.864	0.710	0.669
c_m	-.0018	-.0151	-.0678	-.0654	-.0416

$C_N' = 0.743$
$C_m' = -.0266$
$C_b' = .310$

$x'_{cp} = 28.6$
$y'_{cp} = 41.7$

TABLE XVII.- Continued.

[$M \approx 0.80$; $\delta_f = 7^\circ \pm 1.5^\circ$]

(q) $M = 0.80$ $\alpha = 13.0^\circ$
$C_{N_A} = 0.71$ $\delta_{a_L} = 0.2^\circ$ down
$\delta_f = 7.2^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.423	1.852	2.033	1.463	1.430
2	2.436	1.814	1.843	1.385	1.312
3	1.859	1.658	1.759	1.360	1.140
4	1.984	1.727	1.605	1.283	.929
5	1.591	1.471	1.344	1.233	.785
6	1.342	1.471	1.180	1.123	.738
7	1.138	1.159	1.154	1.023	.629
8	1.116	1.112	1.087	1.033	.522
9	.983	.957	.962	.853	.372
10	.779	.829	.951	.817	.273
11	.659	.689	.810	.712	.371
12	.561	.523	.519	.605	.336
13	.350	.353	.450	.420	.375
14	.330	.258	.355	.362	.324
15	.234	.296	.316	.306	.262
16	.253	.282	.346	.324	
17	.194	.313	.280	.312	
18	.115	.223	.286	.276	
19	.033	.025	.123	.208	
c_n	0.877	0.838	0.855	0.760	0.690
c_m	-.0361	-.0528	-.0762	-.0770	-.0725

$C_N' = 0.782$ $x'_{cp} = 31.6$
$C_m' = -.0515$ $y'_{cp} = 41.3$
$C_b' = .323$

(r) $M = 0.80$ $\alpha = 15.0^\circ$
$C_{N_A} = 0.74$ $\delta_{a_L} = 0.8^\circ$ down
$\delta_f = 7.3^\circ$

Orifice	Row 1	Row 2	Row 3	Row 4	Row 5
1	2.489	1.578	1.792	1.372	1.119
2	2.042	1.594	1.441	1.307	1.112
3	1.785	1.471	1.560	1.214	.992
4	1.813	1.505	1.496	1.249	.820
5	1.449	1.383	1.257	1.145	.697
6	1.208	1.324	1.114	1.065	.653
7	1.103	1.124	1.029	.942	.574
8	.992	1.064	.975	.985	.476
9	.902	.922	.901	.766	.427
10	.769	.845	.900	.721	.267
11	.691	.703	.792	.701	.427
12	.624	.596	.618	.576	.400
13	.407	.382	.557	.433	.370
14	.367	.381	.462	.450	.379
15	.287	.341	.457	.327	.299
16	.340	.385	.511	.361	
17	.249	.307	.385	.357	
18	.165	.277	.424	.305	
19	.000	.017	.133	.272	
c_n	0.842	0.818	0.841	0.732	0.630
c_m	-.0517	-.0740	-.1041	-.0829	-.0823

$C_N' = 0.756$ $x'_{cp} = 34.0$
$C_m' = -.0681$ $y'_{cp} = 41.0$
$C_b' = .310$

[redacted]

[redacted]

TABLE XVII.- Concluded.

[$M \approx 0.80$; $\delta_f = 7^\circ \pm 1.5^\circ$]

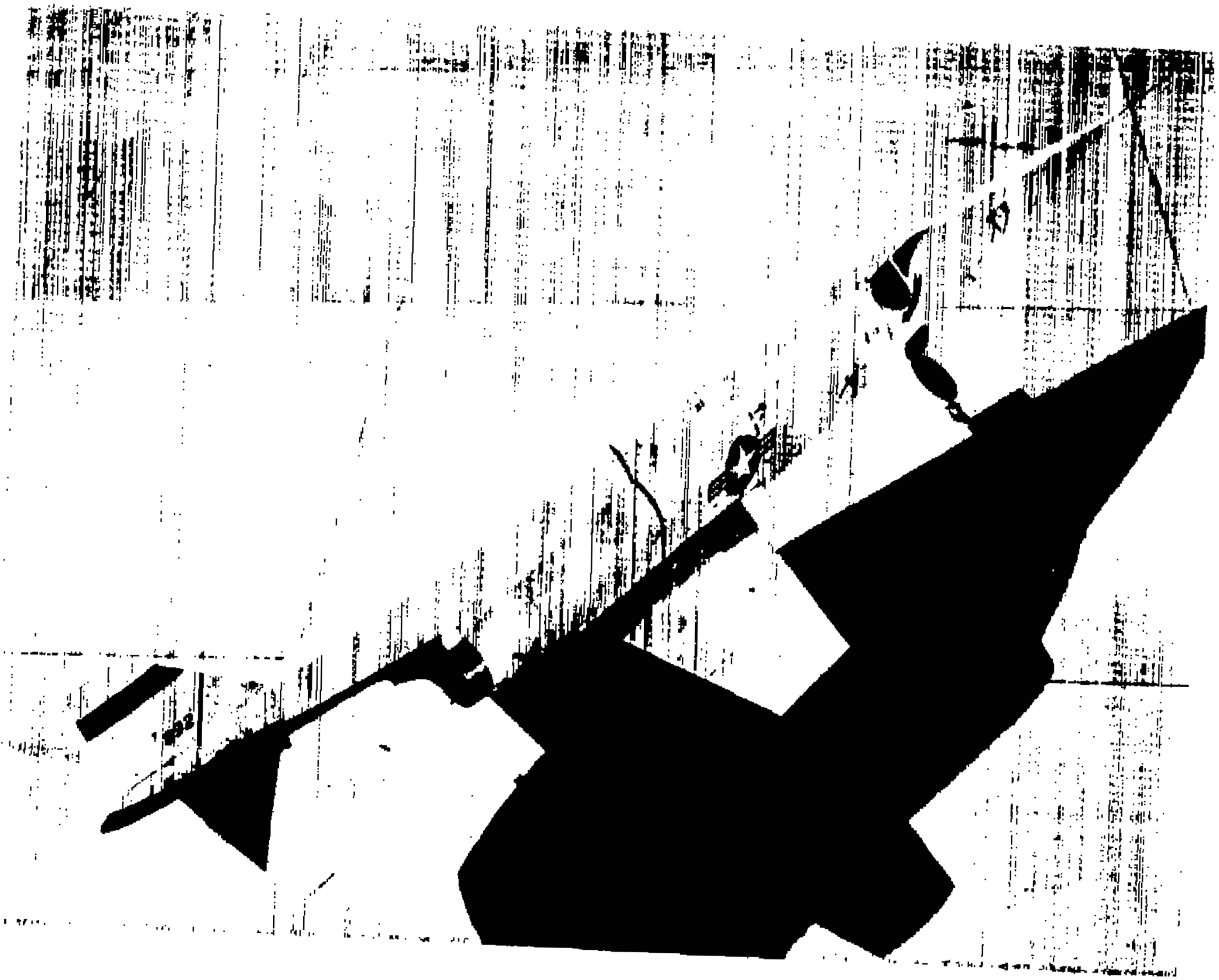
(b) $M = 0.79$
$C_{N_A} = 0.72$

$\alpha = 15.8^\circ$
$\delta_{a_L} = 0.9^\circ$ down
$\delta_f = 7.1^\circ$

Orifice	Row				
	1	2	3	4	5
1	2.494	1.448	1.622	1.313	1.115
2	1.707	1.424	1.392	1.247	1.075
3	1.639	1.390	1.411	1.200	.942
4	1.671	1.321	1.336	1.211	.834
5	1.402	1.245	1.254	1.119	.684
6	1.036	1.184	1.165	1.027	.640
7	1.054	.973	1.001	.903	.551
8	.920	.979	1.026	.946	.436
9	.872	.850	.864	.745	.387
10	.766	.842	.838	.683	.295
11	.714	.692	.736	.626	.403
12	.611	.626	.536	.546	.394
13	.456	.455	.491	.427	.364
14	.430	.410	.433	.402	.399
15	.348	.404	.443	.329	.301
16	.333	.429	.429	.364	
17	.277	.344	.379	.376	
18	.200	.331	.358	.307	
19	.025	.034	.107	.300	
c_n	0.810	0.781	0.791	0.704	0.612
c_m	-.0615	-.0866	-.0932	-.0795	-.0787

$C_N' = 0.723$
$C_m' = -.0726$
$C_b' = .297$

$x'_{cp} = 35.0$
$y'_{cp} = 41.1$



E-1994

Figure 1.- Photograph of the Douglas X-3 research airplane.

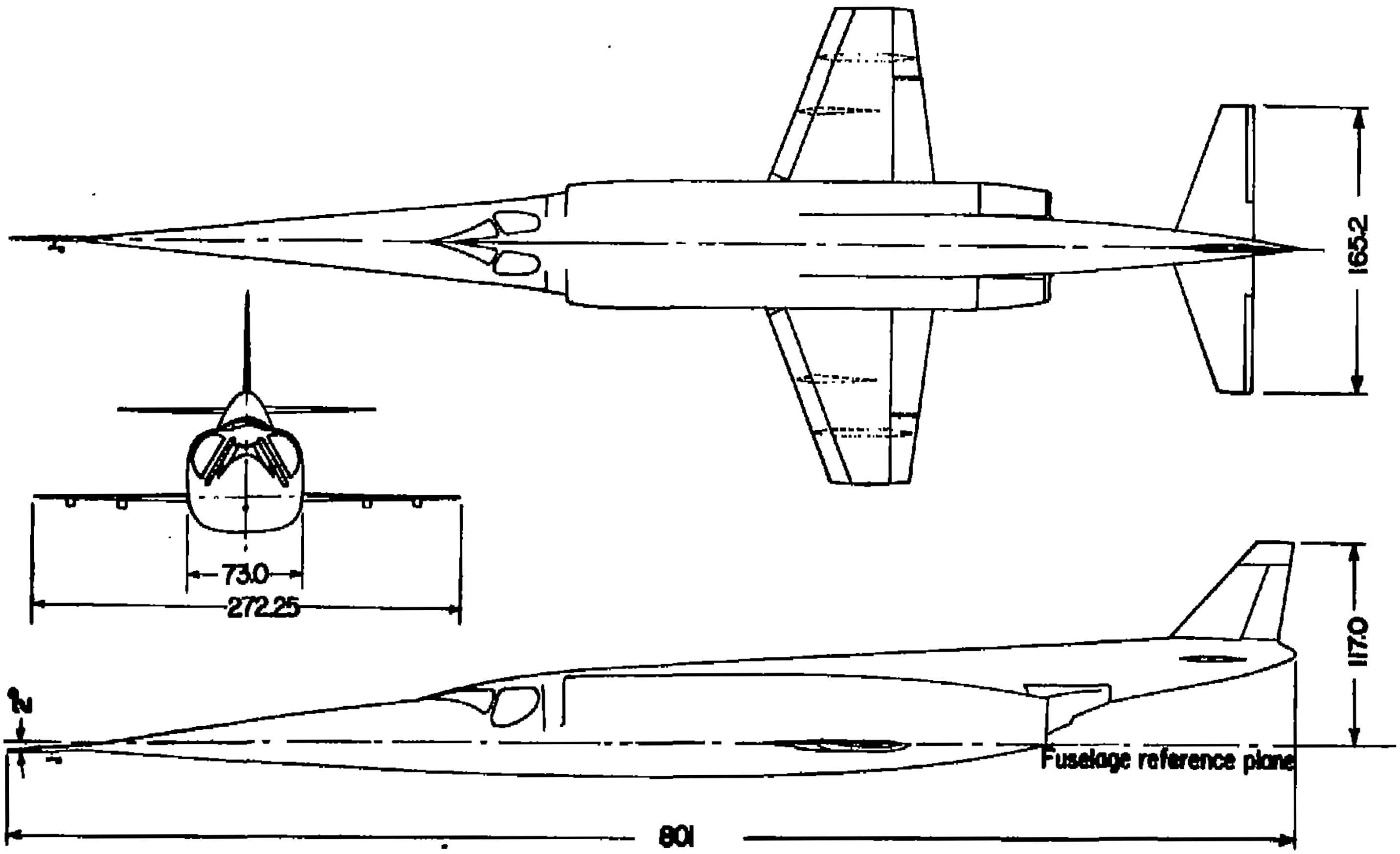
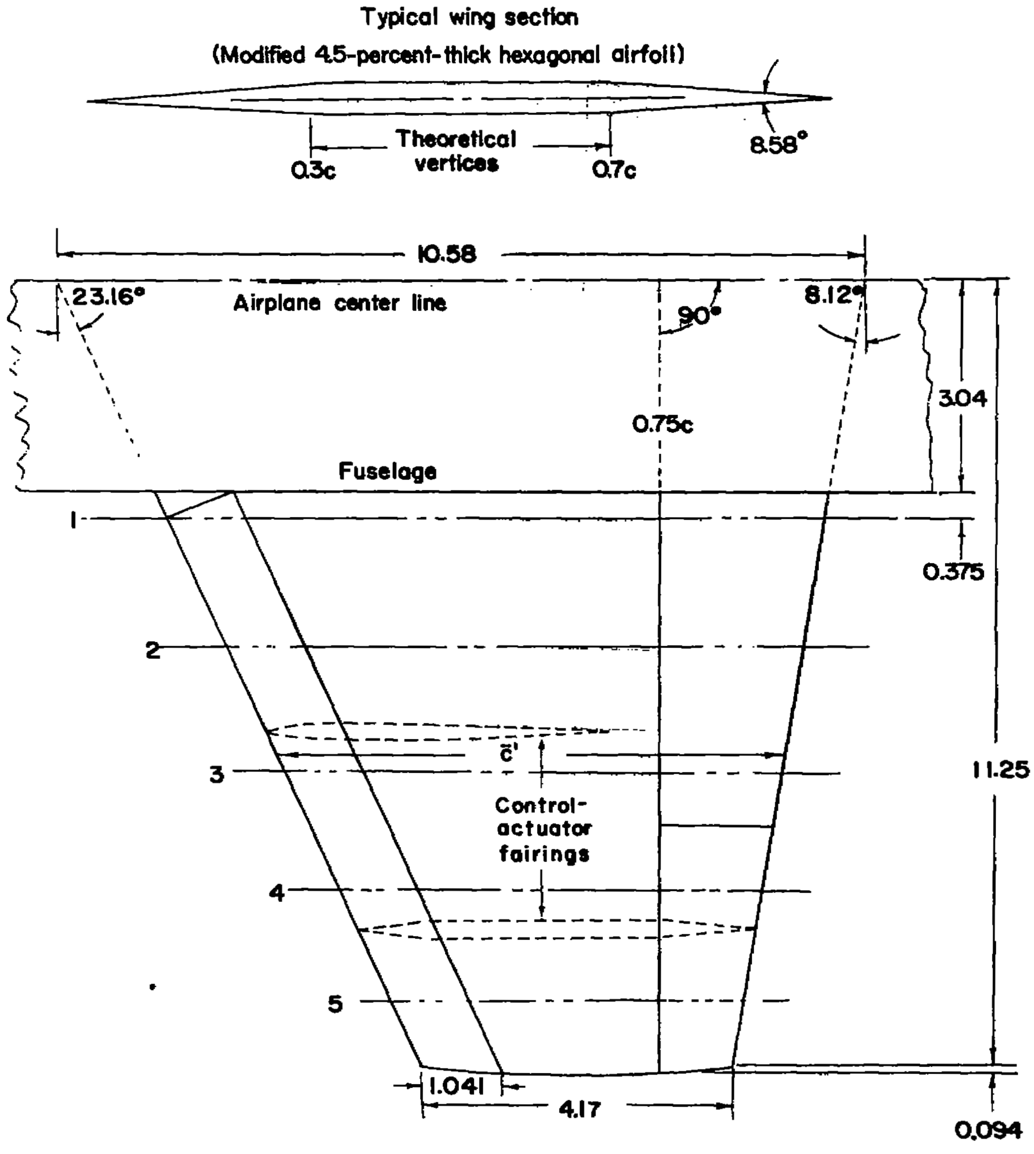


Figure 2.- Three-view drawing of the X-3 airplane. All dimensions are in inches.



Orifice row	1	2	3	4	5
Chord length, ft	8.65	7.59	6.54	5.59	4.69
Spanwise location, percent b'/2	0	0.231	0.462	0.673	0.872

Figure 3.- Drawing of the left wing of the Douglas X-3 airplane showing the spanwise location of the orifice rows. All dimensions are in feet unless otherwise stated.

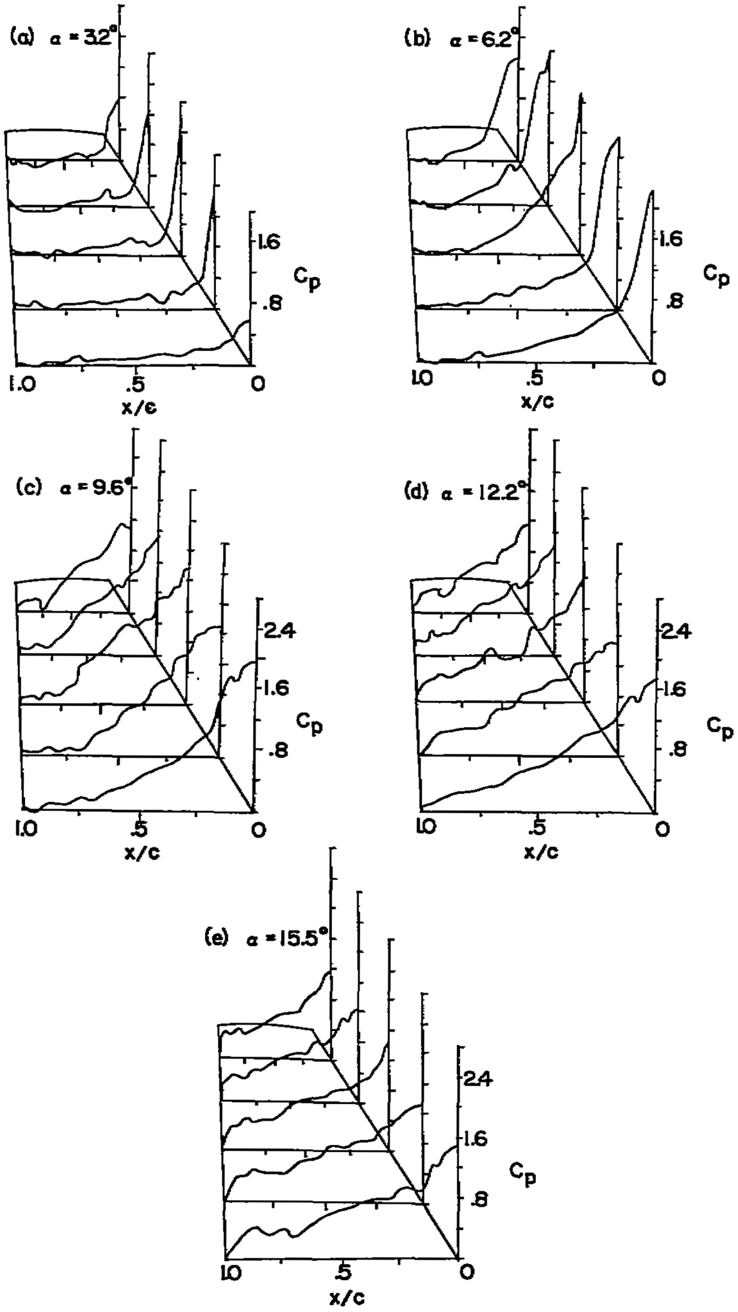


Figure 4.- Chordwise load distributions over the left wing of the X-3 airplane at five orifice stations for several values of angle of attack. $M \approx 0.71$.

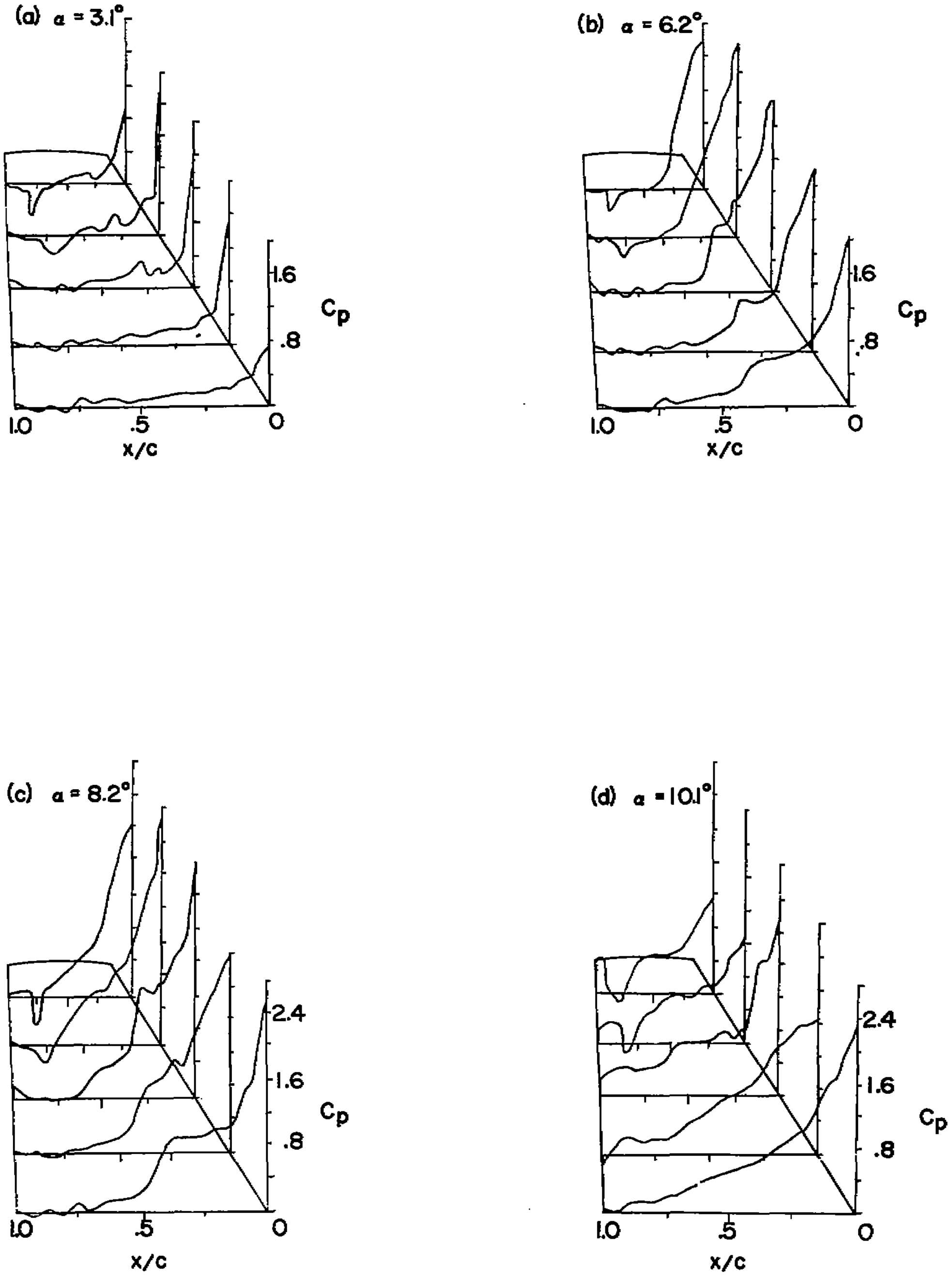


Figure 5.- Chordwise load distributions over the left wing of the X-3 airplane at five orifice stations for several values of angle of attack. $M \approx 0.83$.

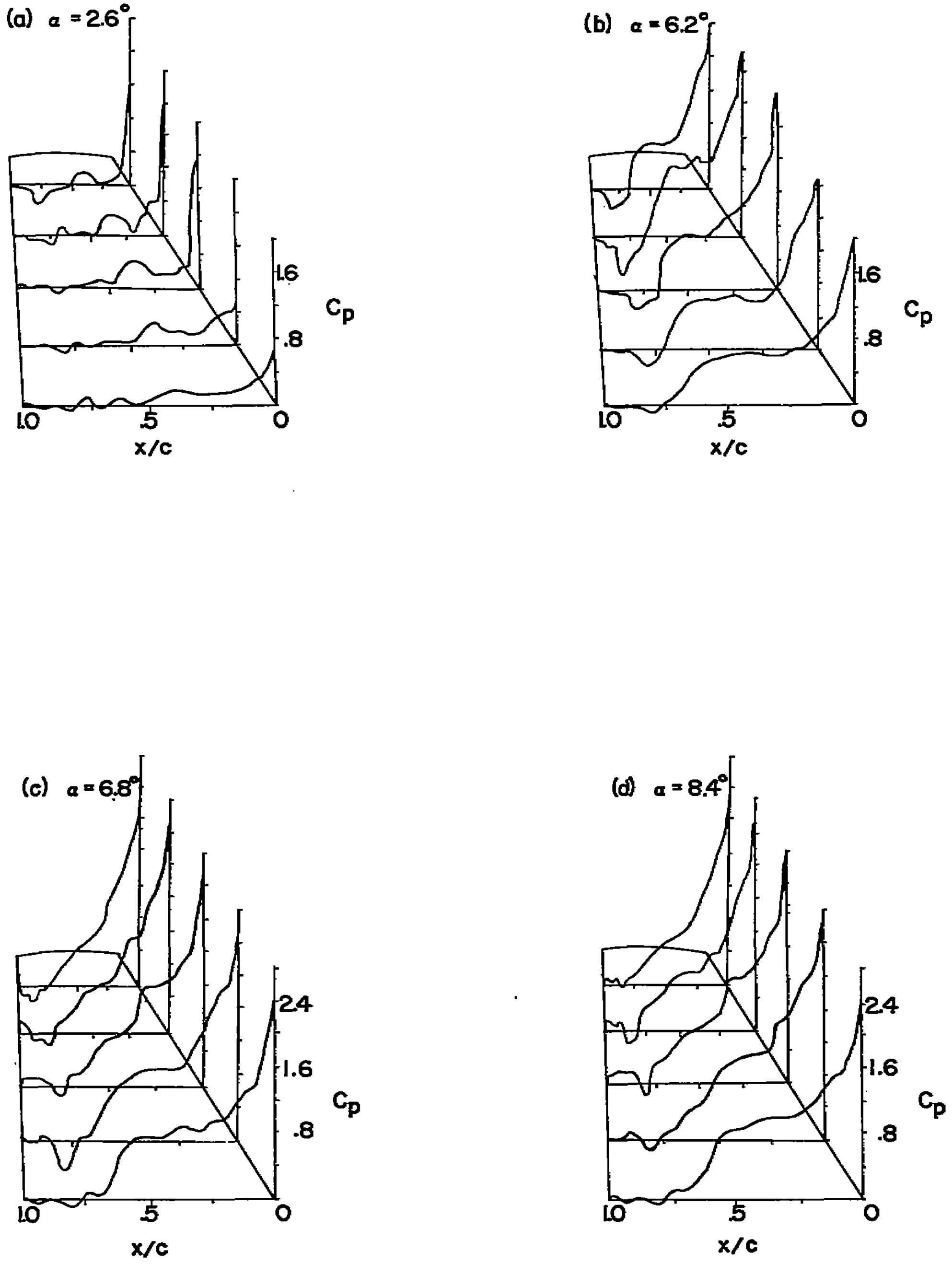


Figure 6.- Chordwise load distributions over the left wing of the X-3 airplane at five orifice stations for several values of angle of attack. $M \approx 0.88$.

[redacted]

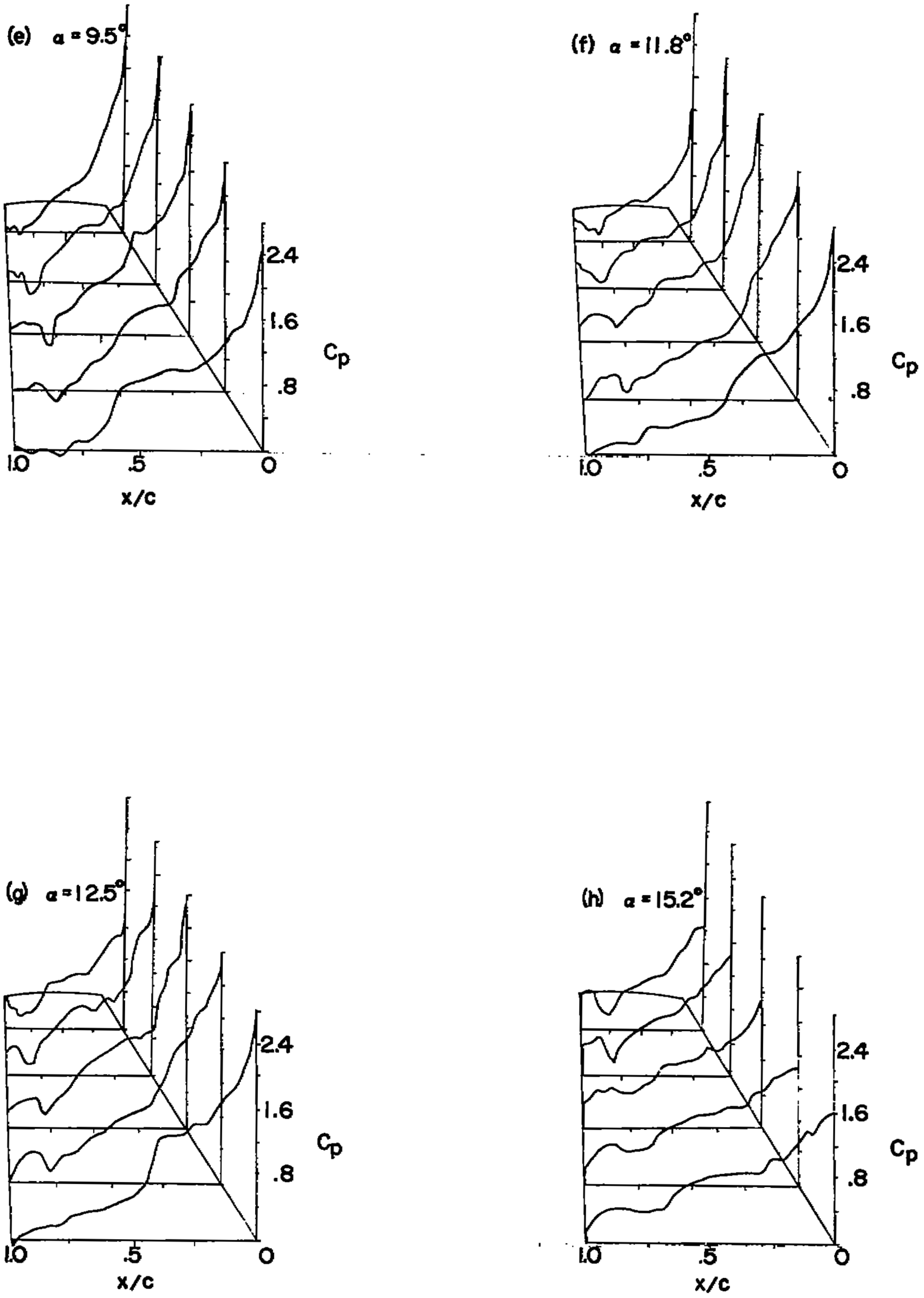


Figure 6.- Concluded.

[redacted]

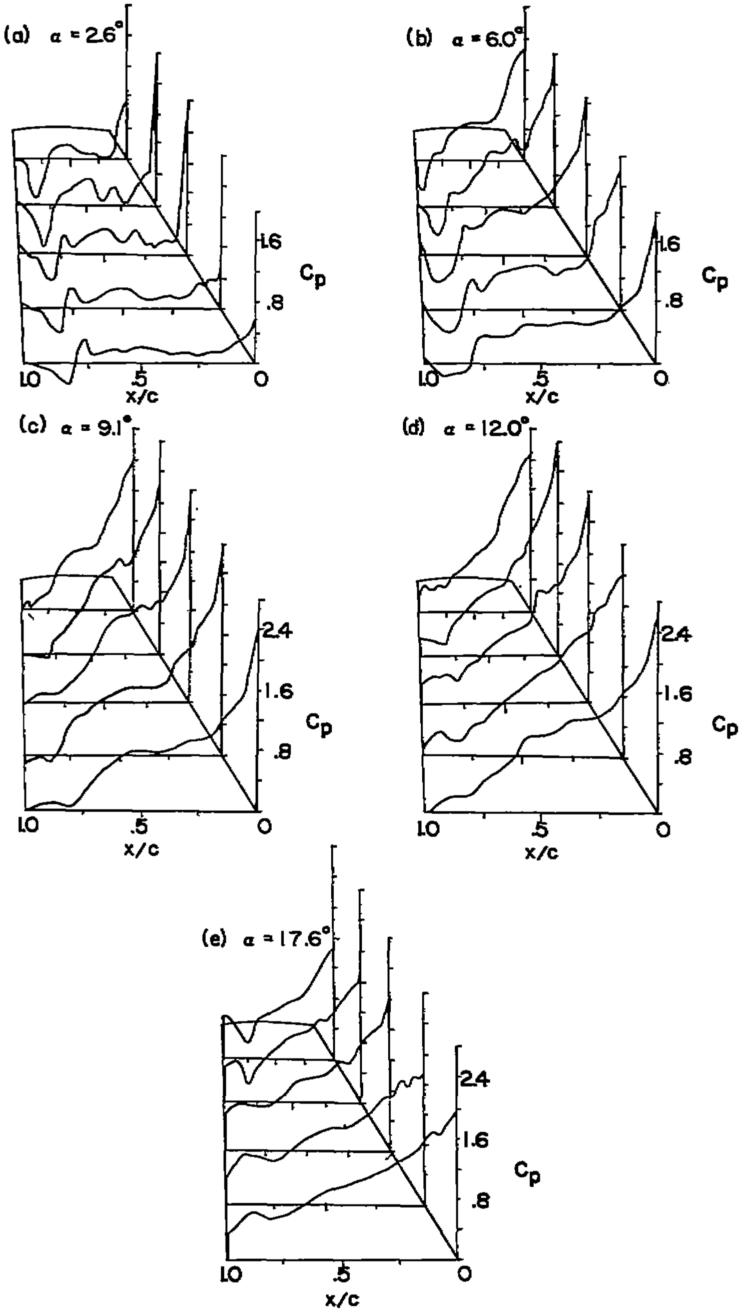


Figure 7.- Chordwise load distributions over the left wing of the X-3 airplane at five orifice stations for several values of angle of attack. $M \approx 0.92$.

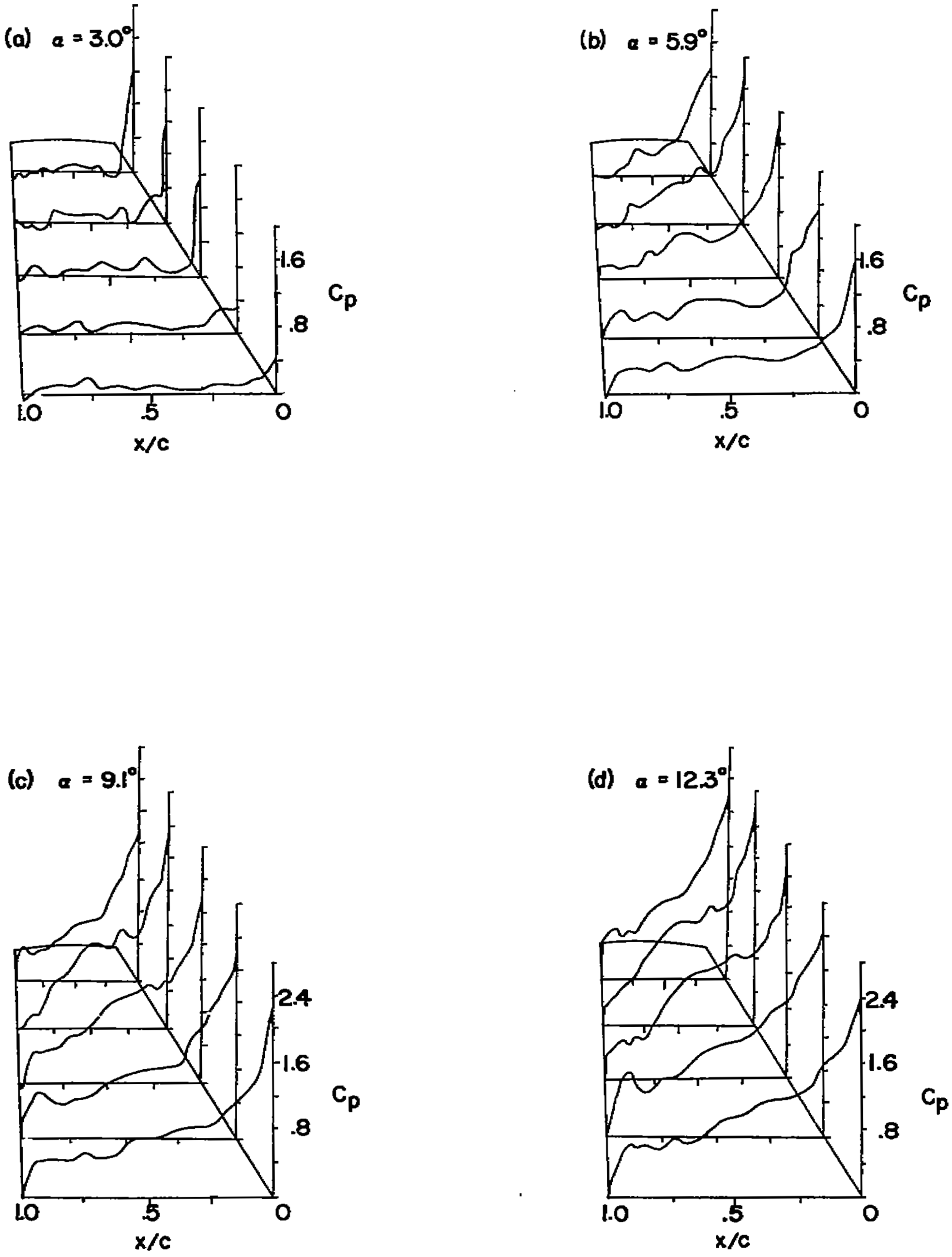


Figure 8.- Chordwise load distributions over the left wing of the X-3 airplane at five orifice stations for several values of angle of attack. $M \approx 0.99$.

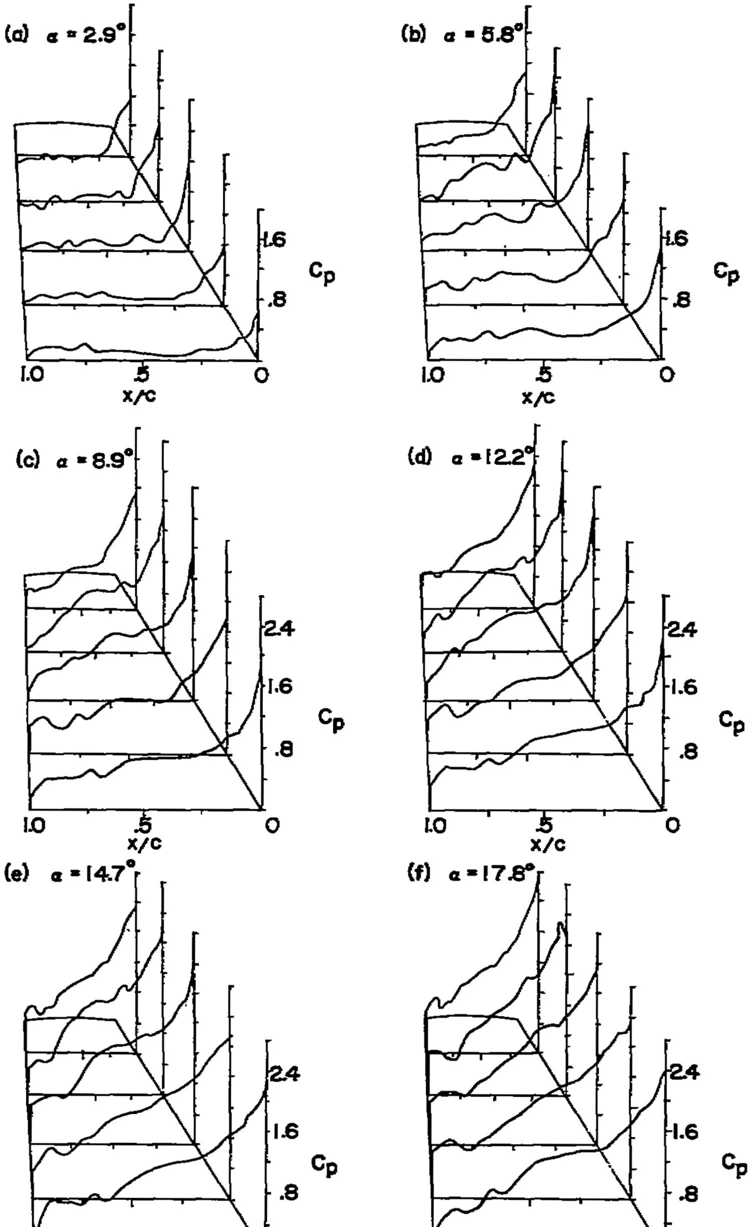


Figure 9.- Chordwise load distributions over the left wing of the X-3 airplane at five orifice stations for several values of angle of attack. $M \approx 1.15$.

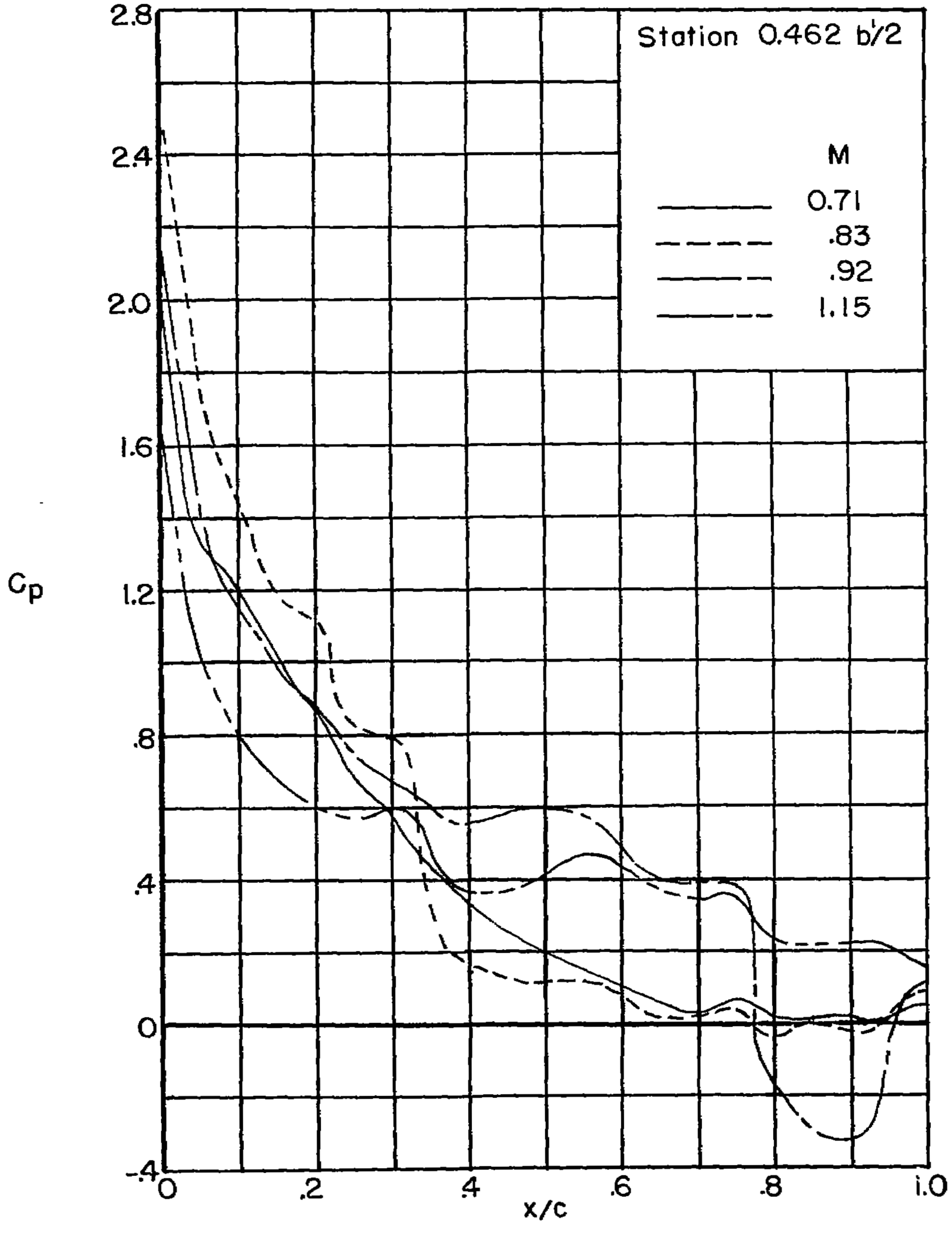


Figure 10.- Effect of Mach number on the load distribution over the midsemispan orifice station of the left wing of the X-3 airplane. $\alpha \approx 6^\circ$.

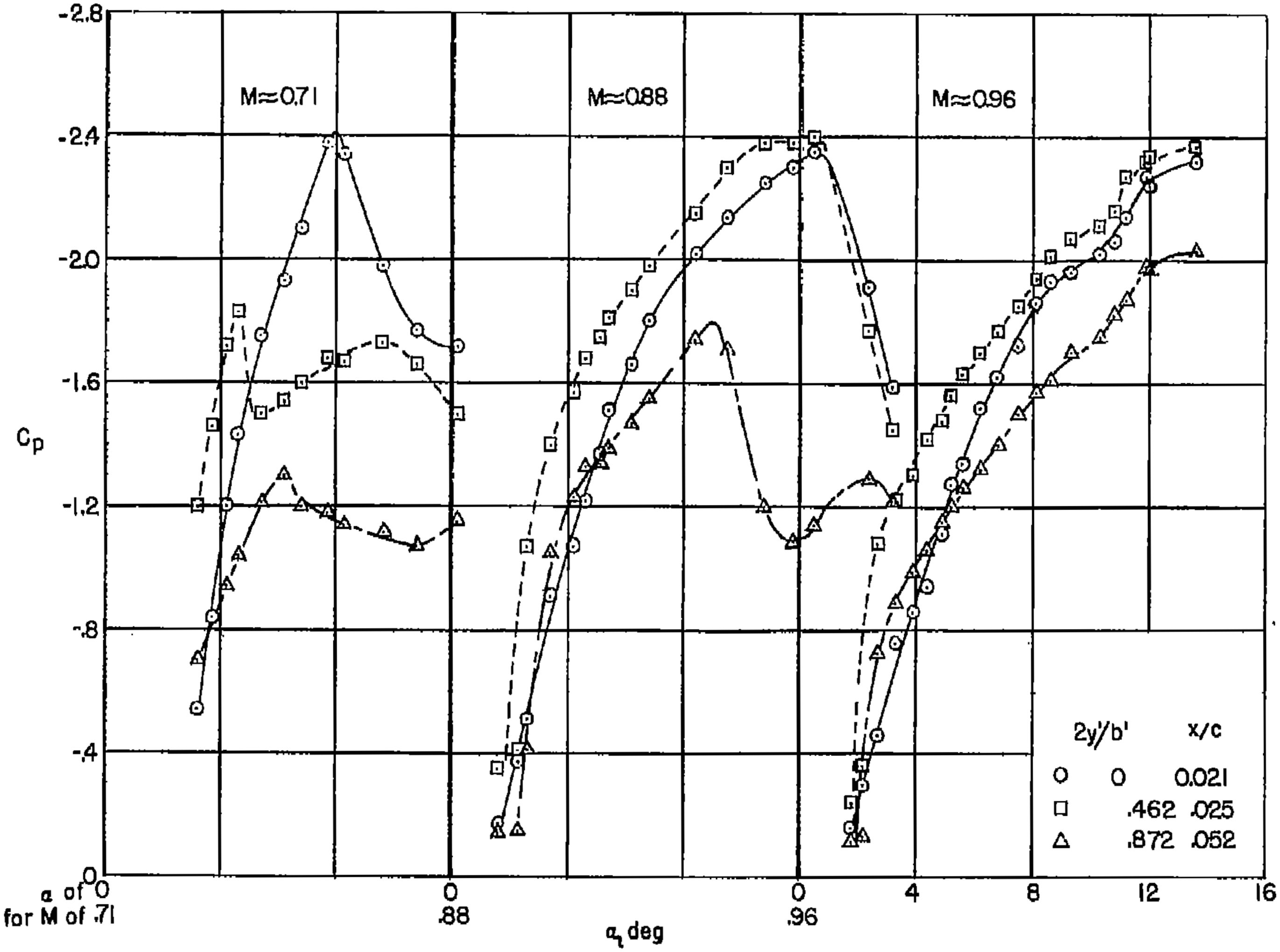


Figure 11.- Variation with angle of attack of the resultant-pressure coefficient at the leading edge of the wing of the X-3 airplane for the root, midsemispan, and tip orifice stations.

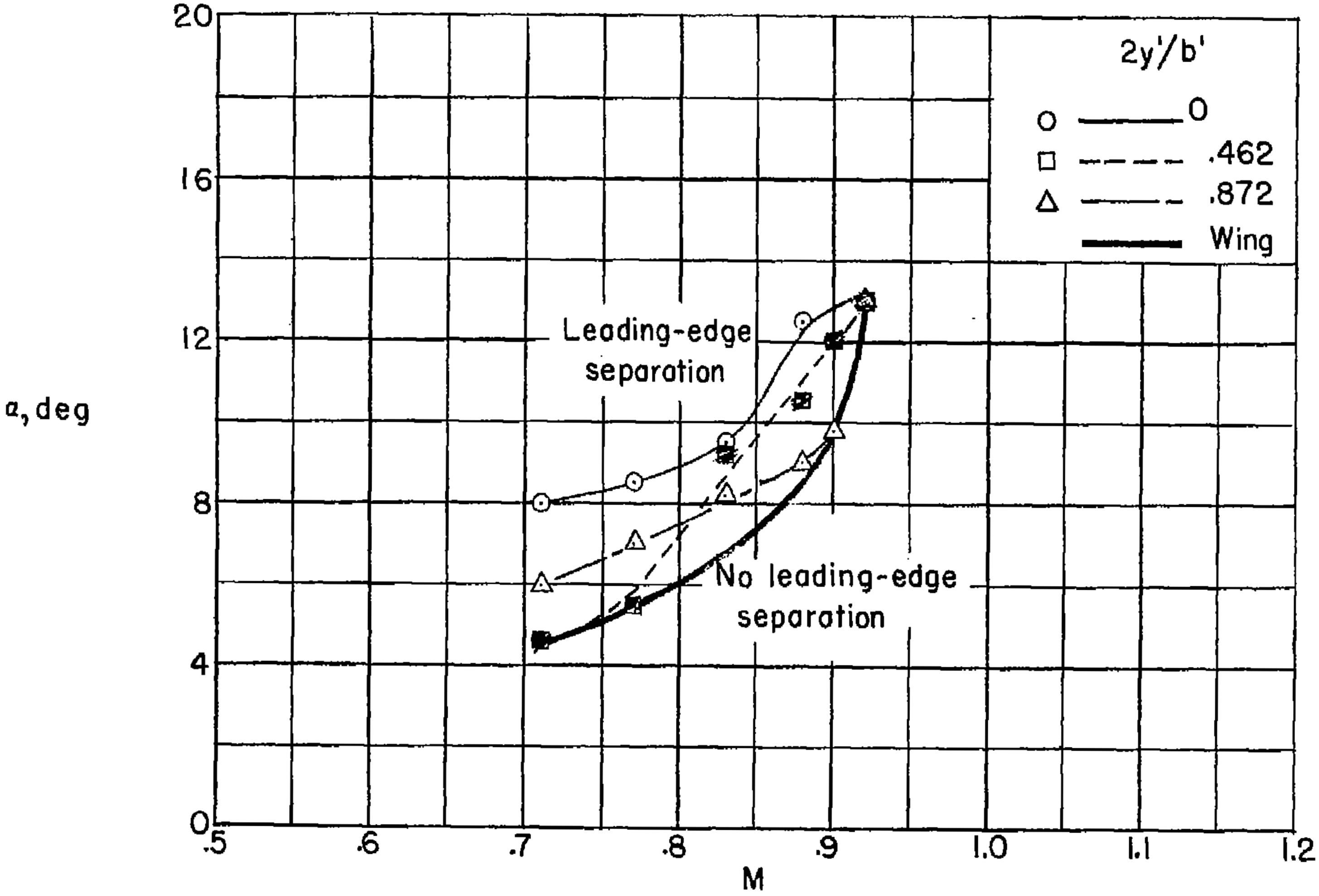
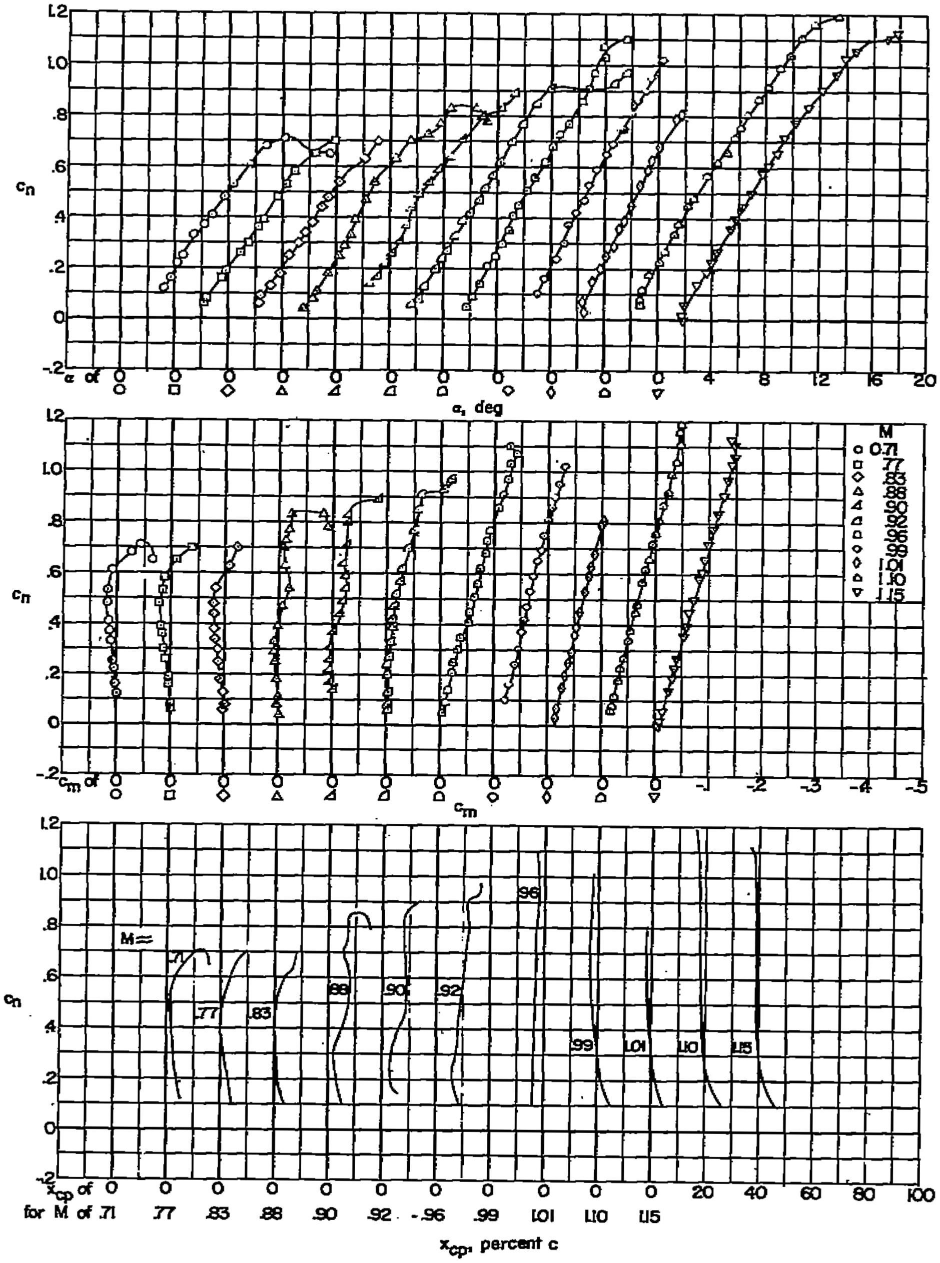
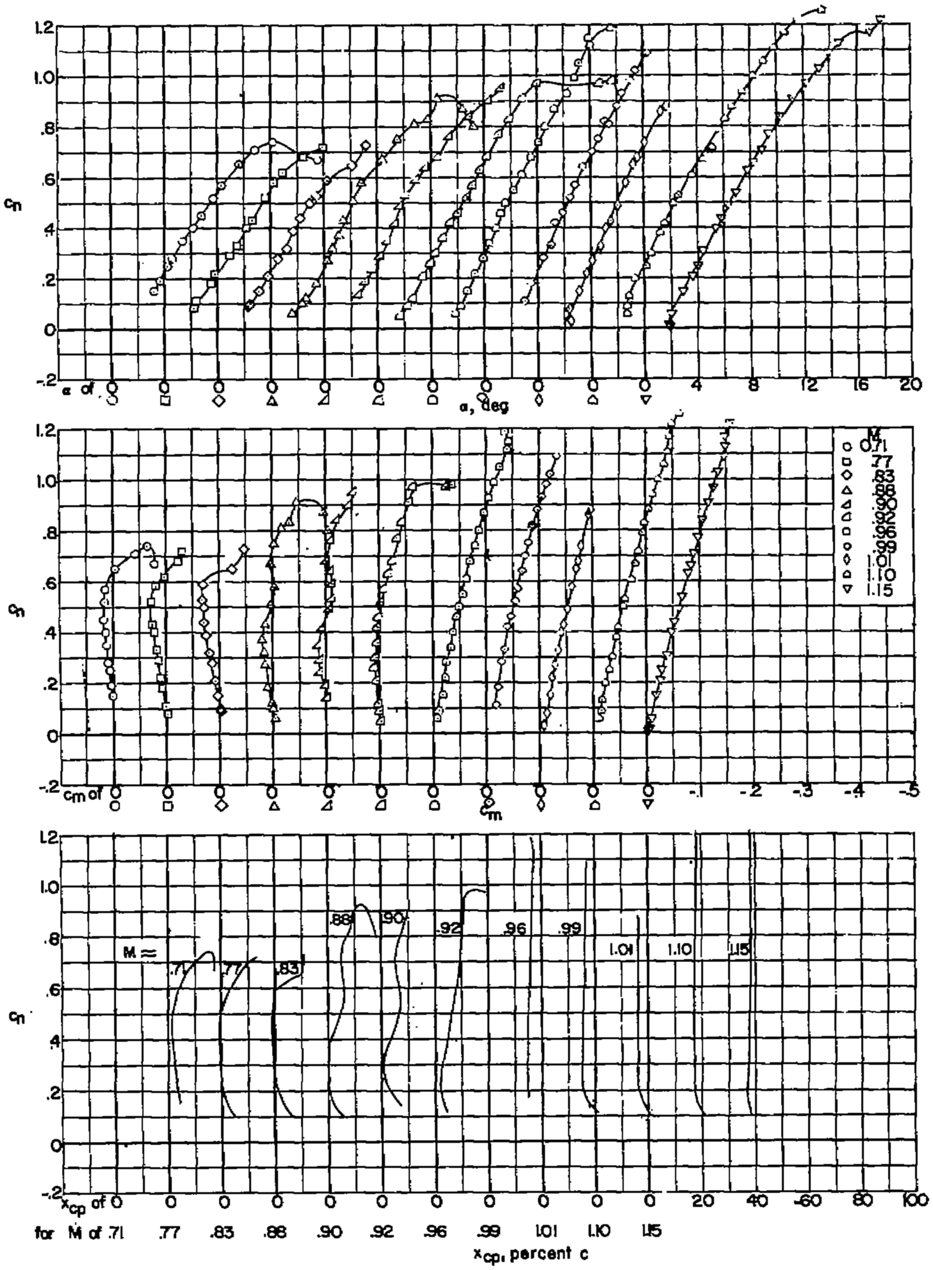


Figure 12.- Approximate boundary for leading-edge flow separation for the root, midsemispan, and tip orifice stations of the wing of the X-3 airplane.



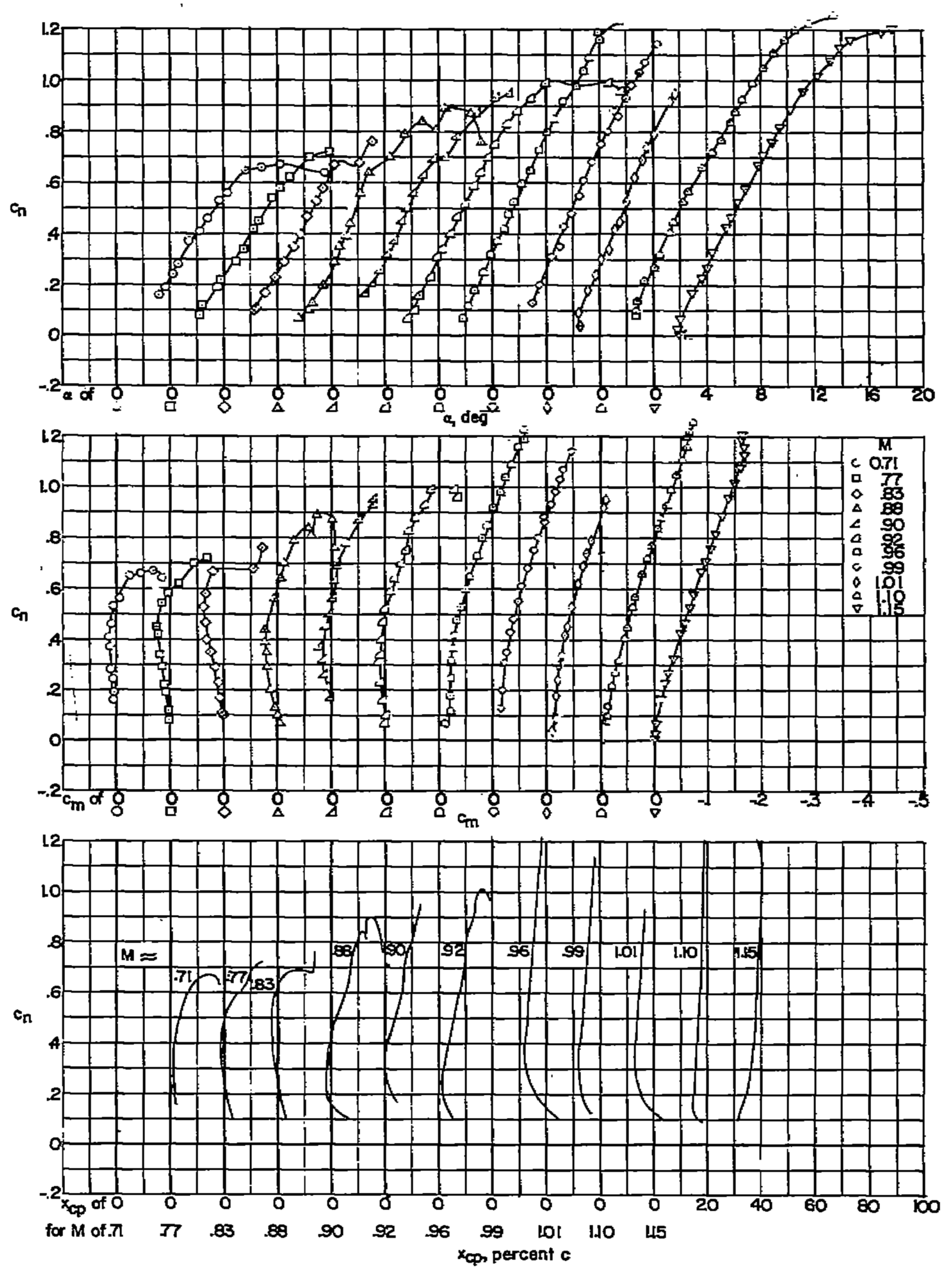
(a) Station 0b'/2.

Figure 13.- Wing-section aerodynamic characteristics for the five orifice stations of the wing of the X-3 airplane.



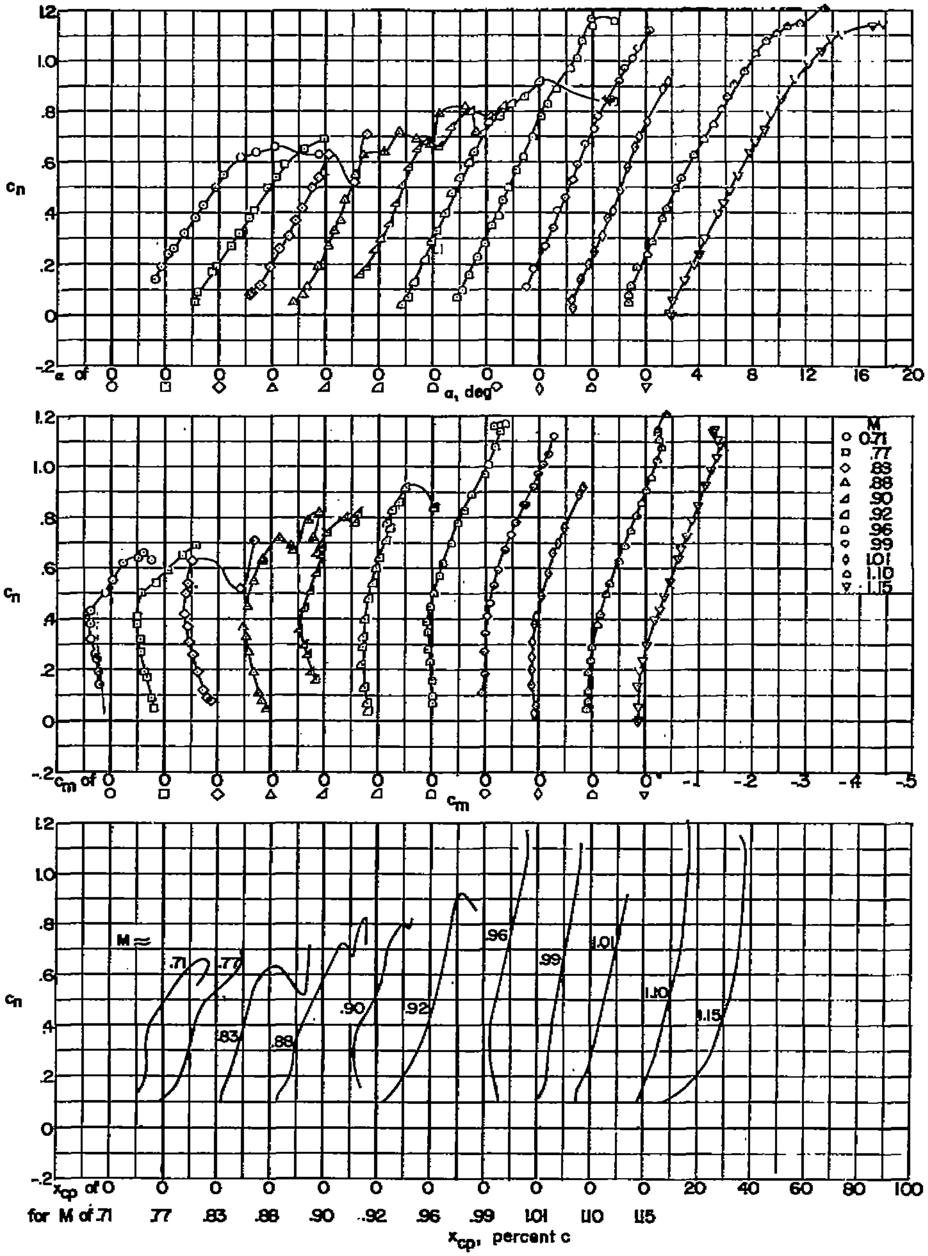
(b) Station 0.231b'/2.

Figure 13.- Continued.



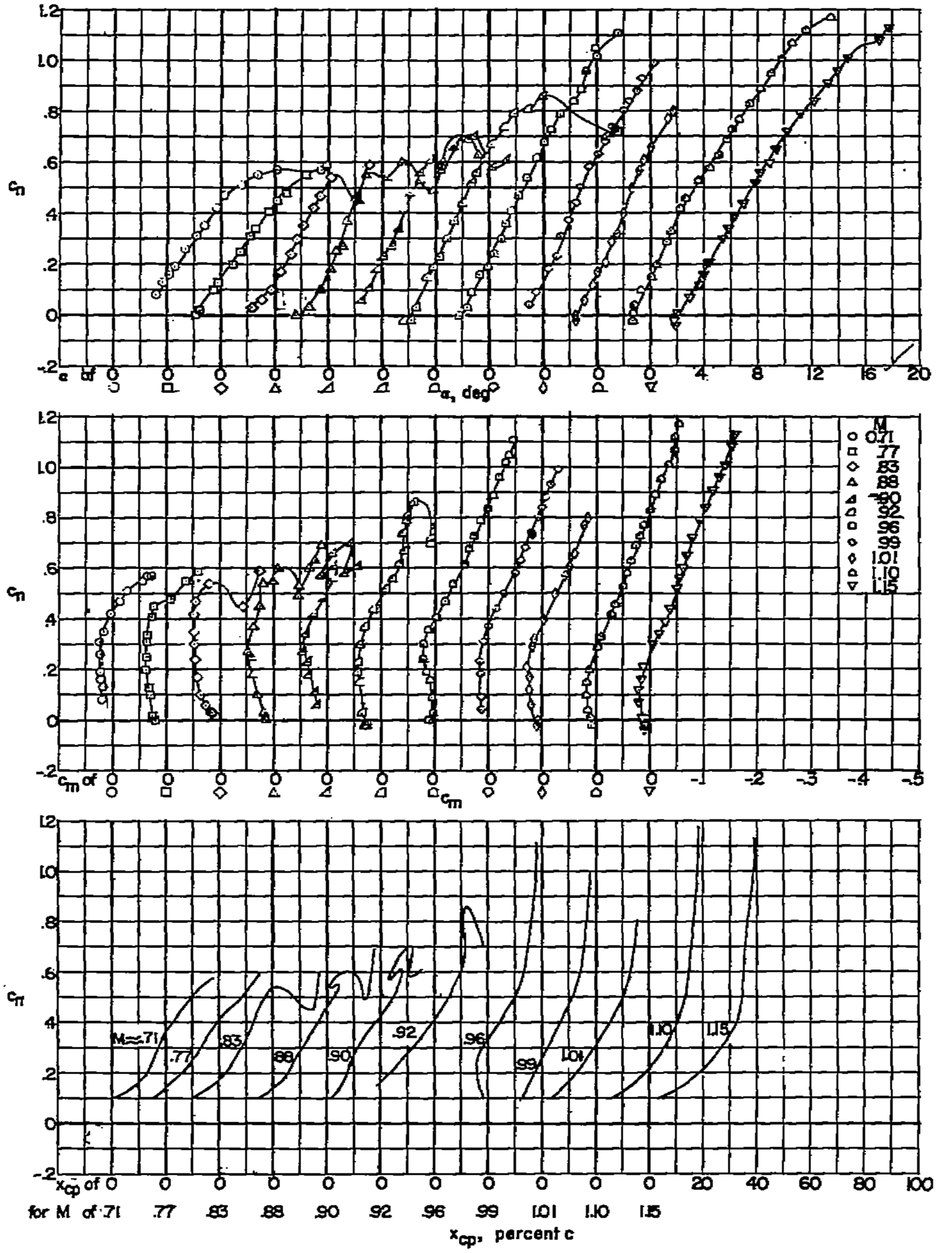
(c) Station 0.462b'/2.

Figure 13.- Continued.



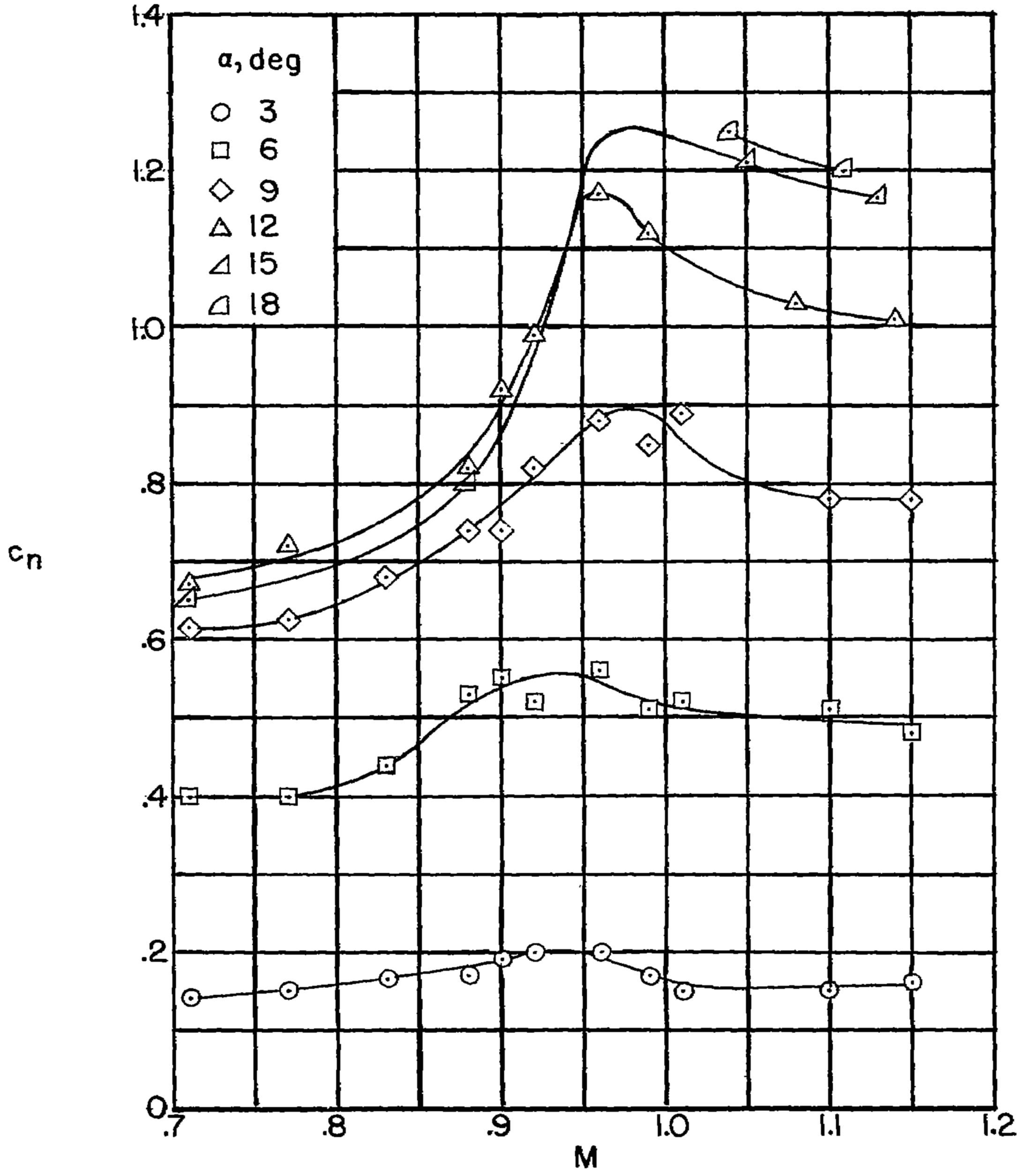
(d) Station 0.673b'/2.

Figure 13.- Continued.



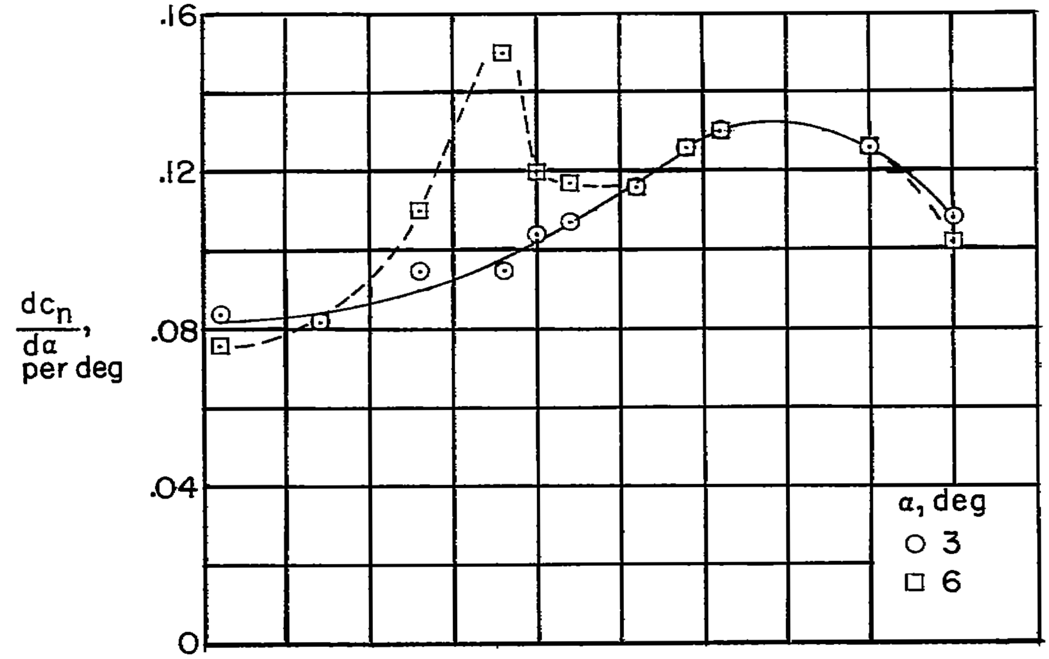
(e) Station 0.872b'/2.

Figure 13.- Concluded.

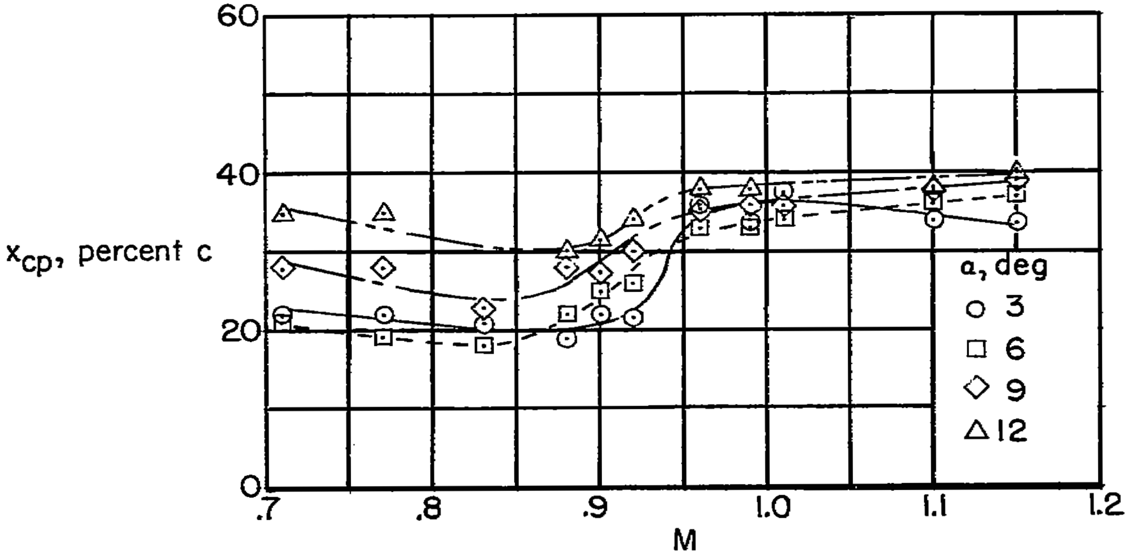


(a) Normal-force coefficient.

Figure 14.- Variation with Mach number of the aerodynamic characteristics of the midsemispan orifice station (0.462b'/2) of the wing of the X-3 airplane at several angles of attack.



(b) Normal-force-curve slope.



(c) Center of pressure.

Figure 14.- Concluded.

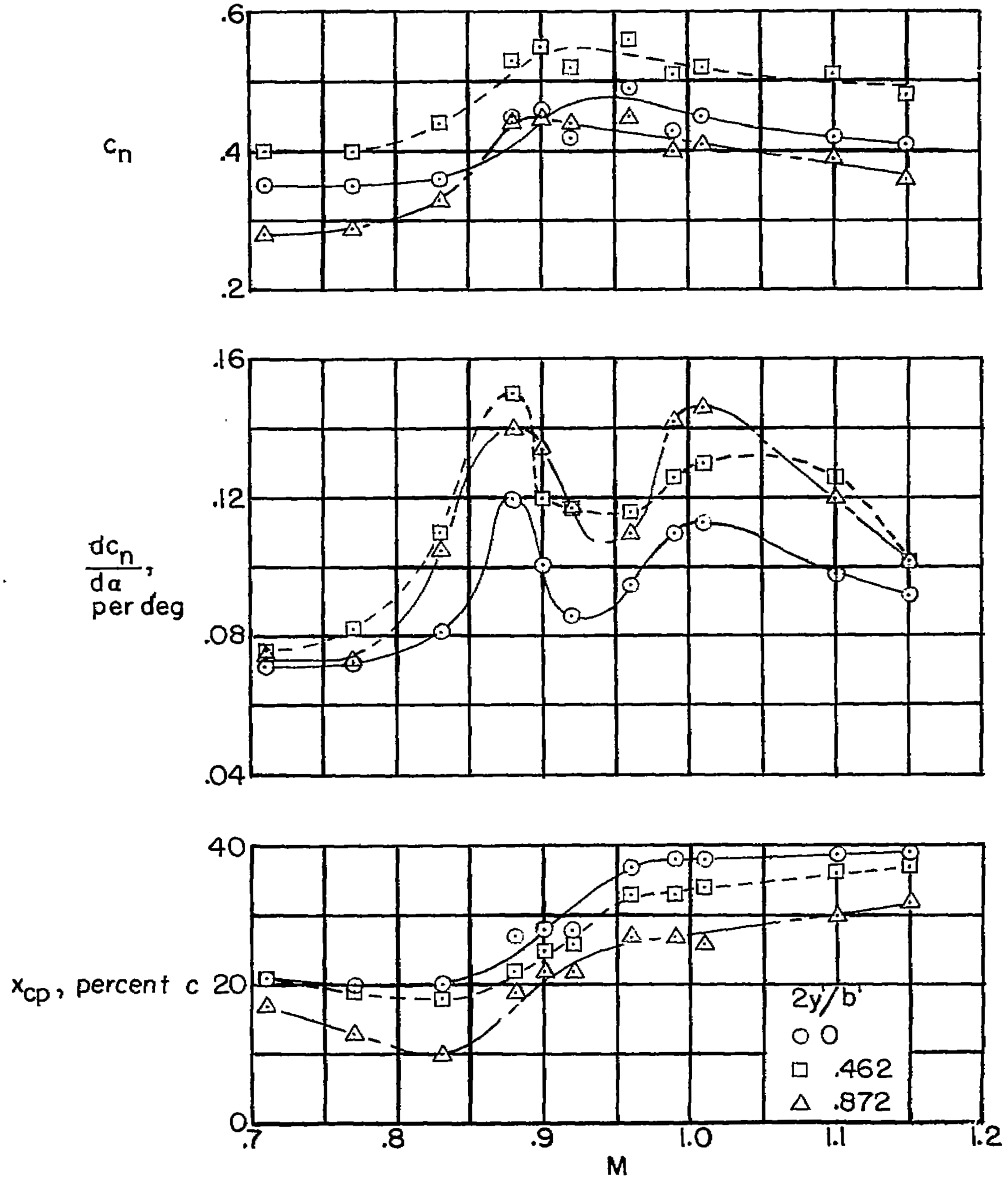
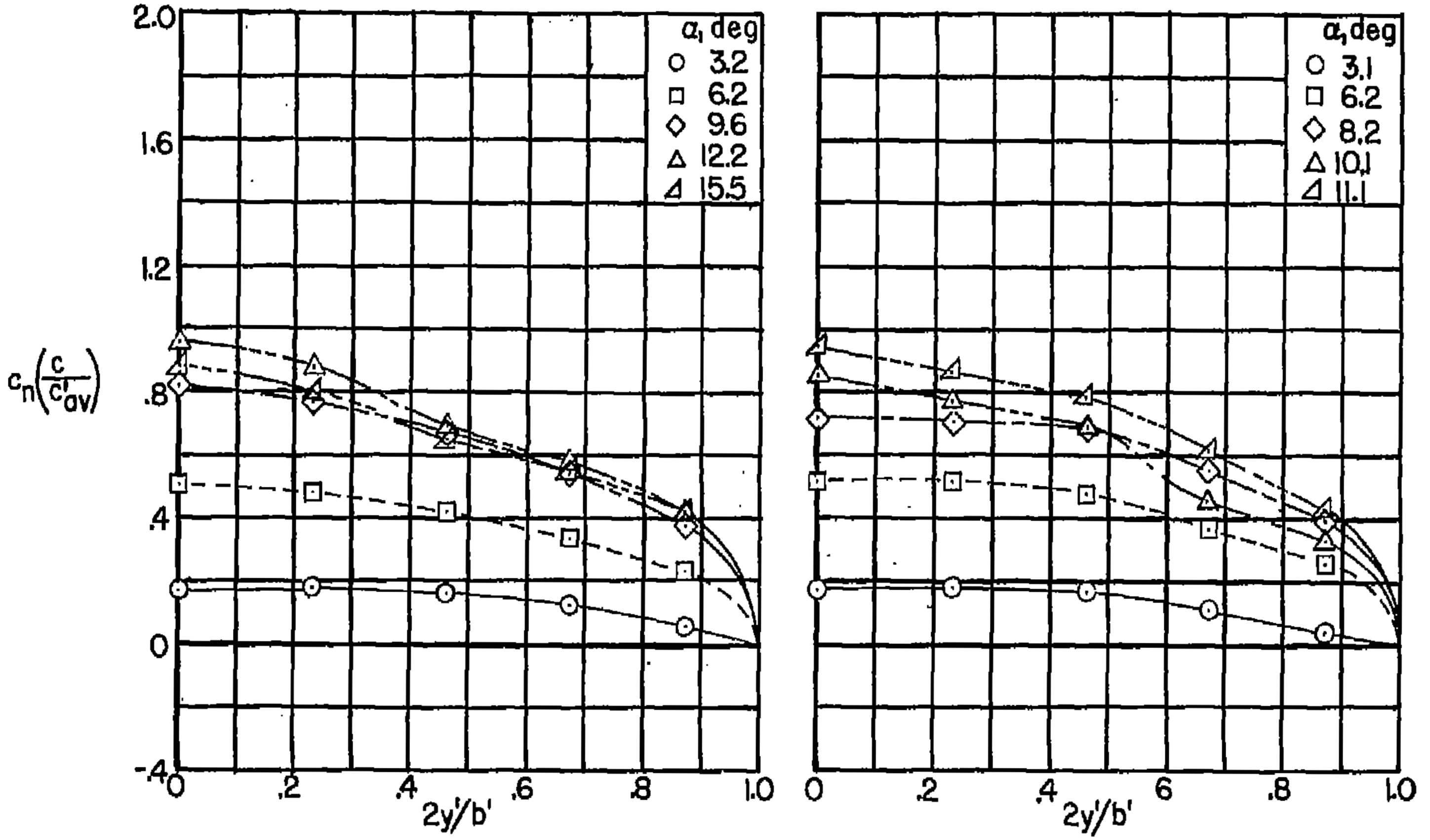


Figure 15.- Variation with Mach number of the aerodynamic characteristics of the root, midsemispan, and tip orifice stations of the wing of the X-3 airplane. $\alpha \approx 6^{\circ}$.

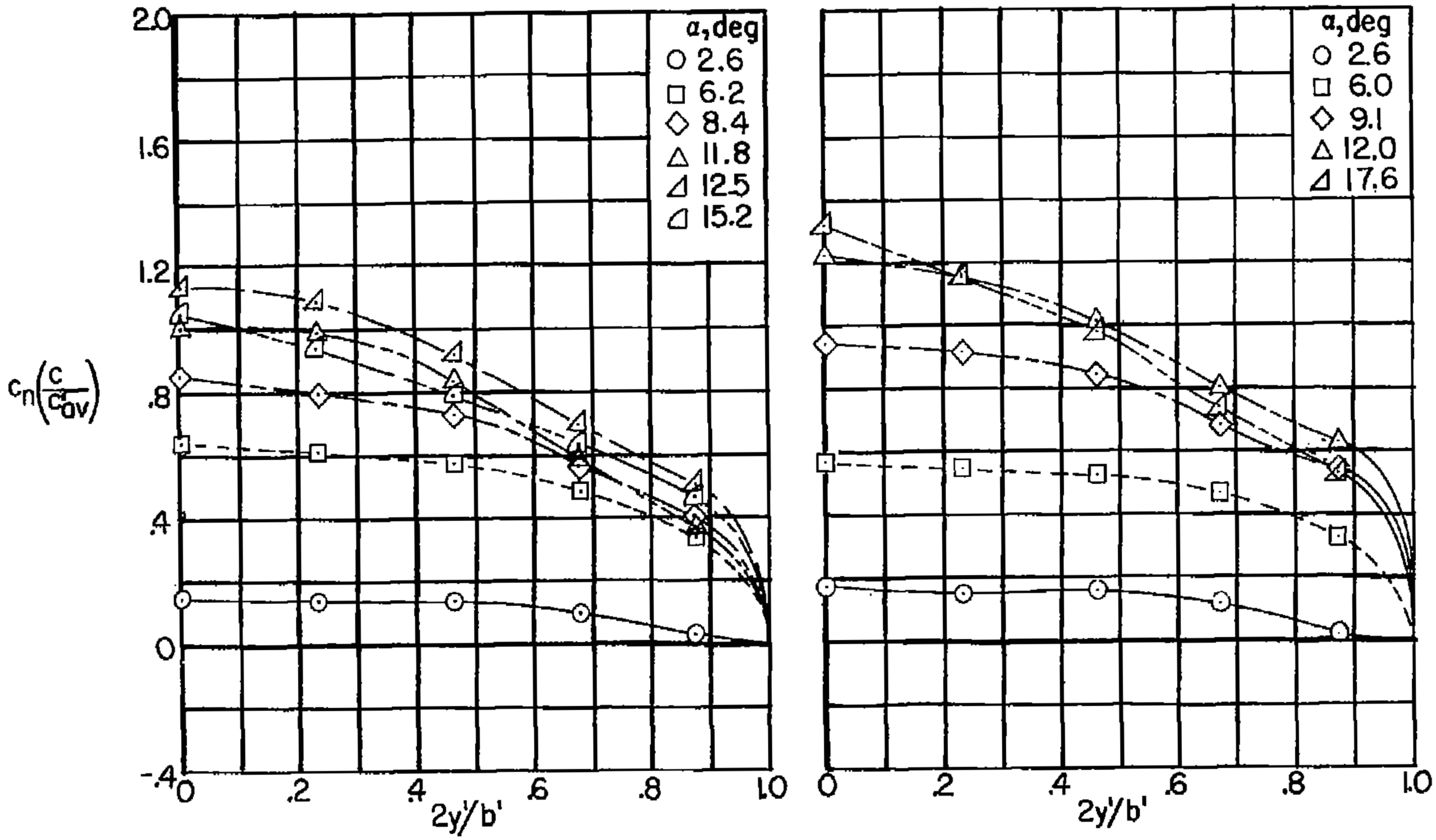
[redacted]



(a) M ≈ 0.71.

(b) M ≈ 0.83.

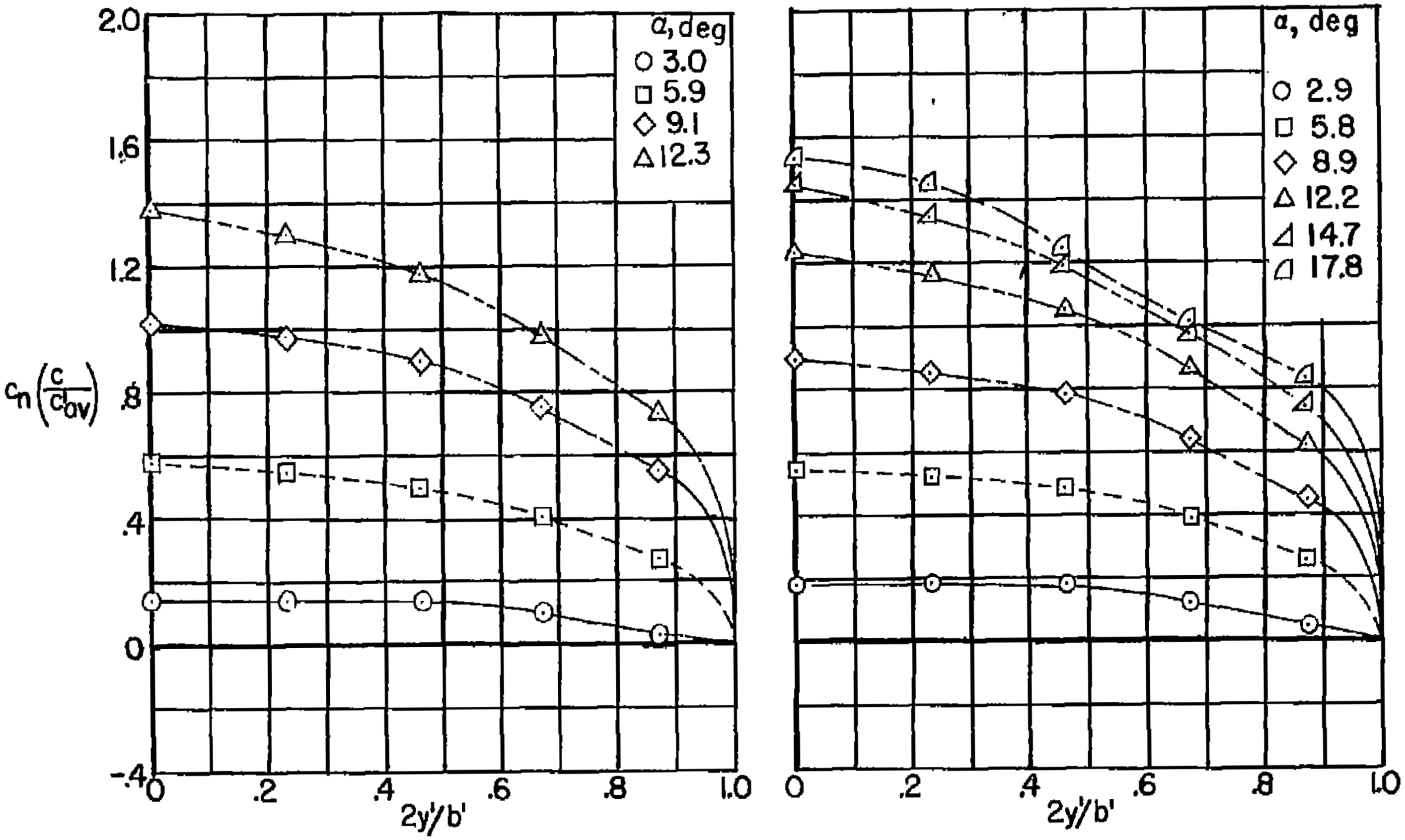
Figure 16.- Spanwise load distributions over the wing of the X-3 airplane at representative Mach numbers and angles of attack.



(c) M ≈ 0.88.

(d) M ≈ 0.92.

Figure 16.- Continued.



(e) M ≈ 0.99.

(f) M ≈ 1.15.

Figure 16.- Concluded.

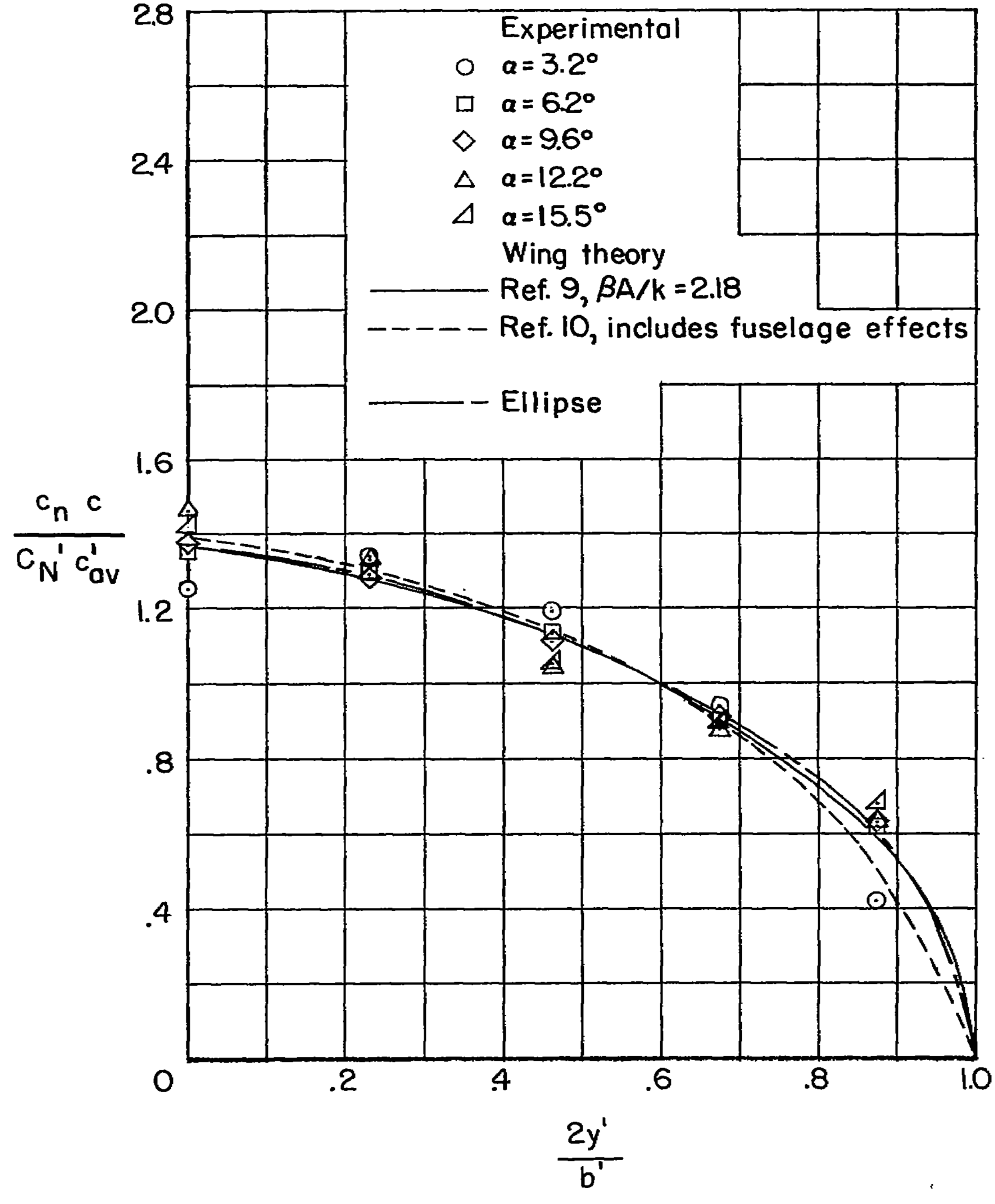
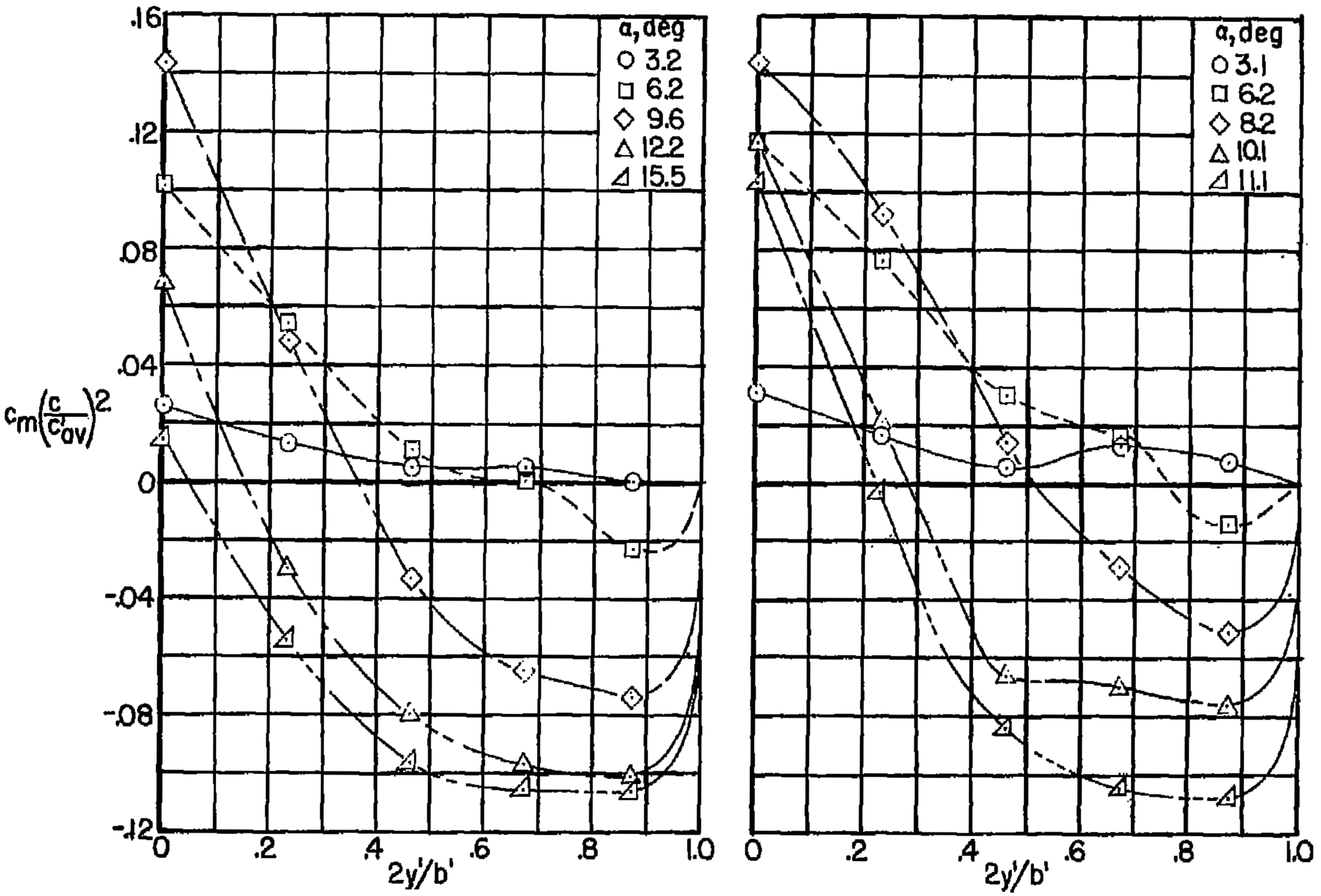


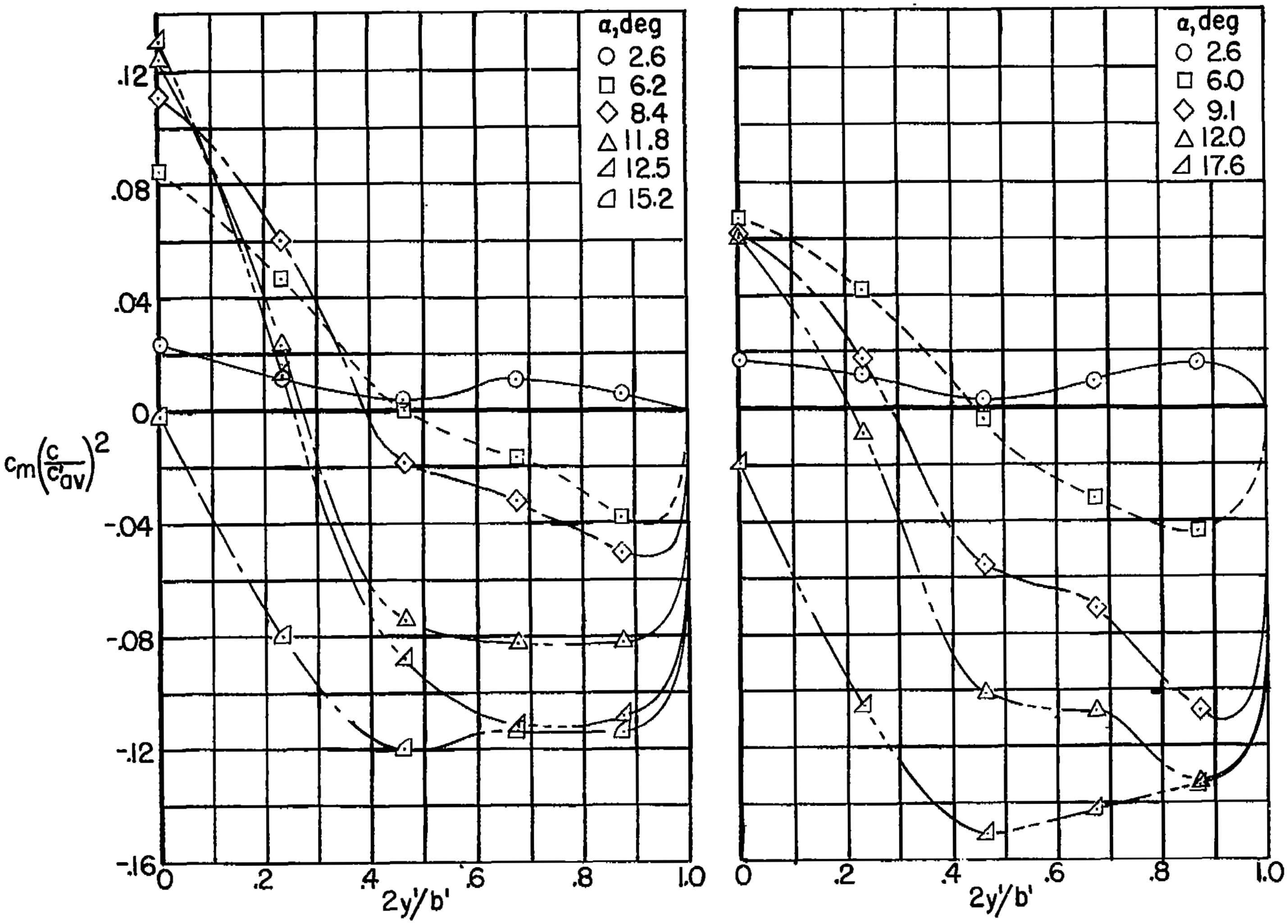
Figure 17.- Comparison of spanwise load distributions over the wing of the X-3 airplane with theory. M ≈ 0.71.



(a) M ≈ 0.71.

(b) M ≈ 0.83.

Figure 18.- Spanwise pitching-moment distributions over the wing of the X-3 airplane at representative Mach numbers and angles of attack.

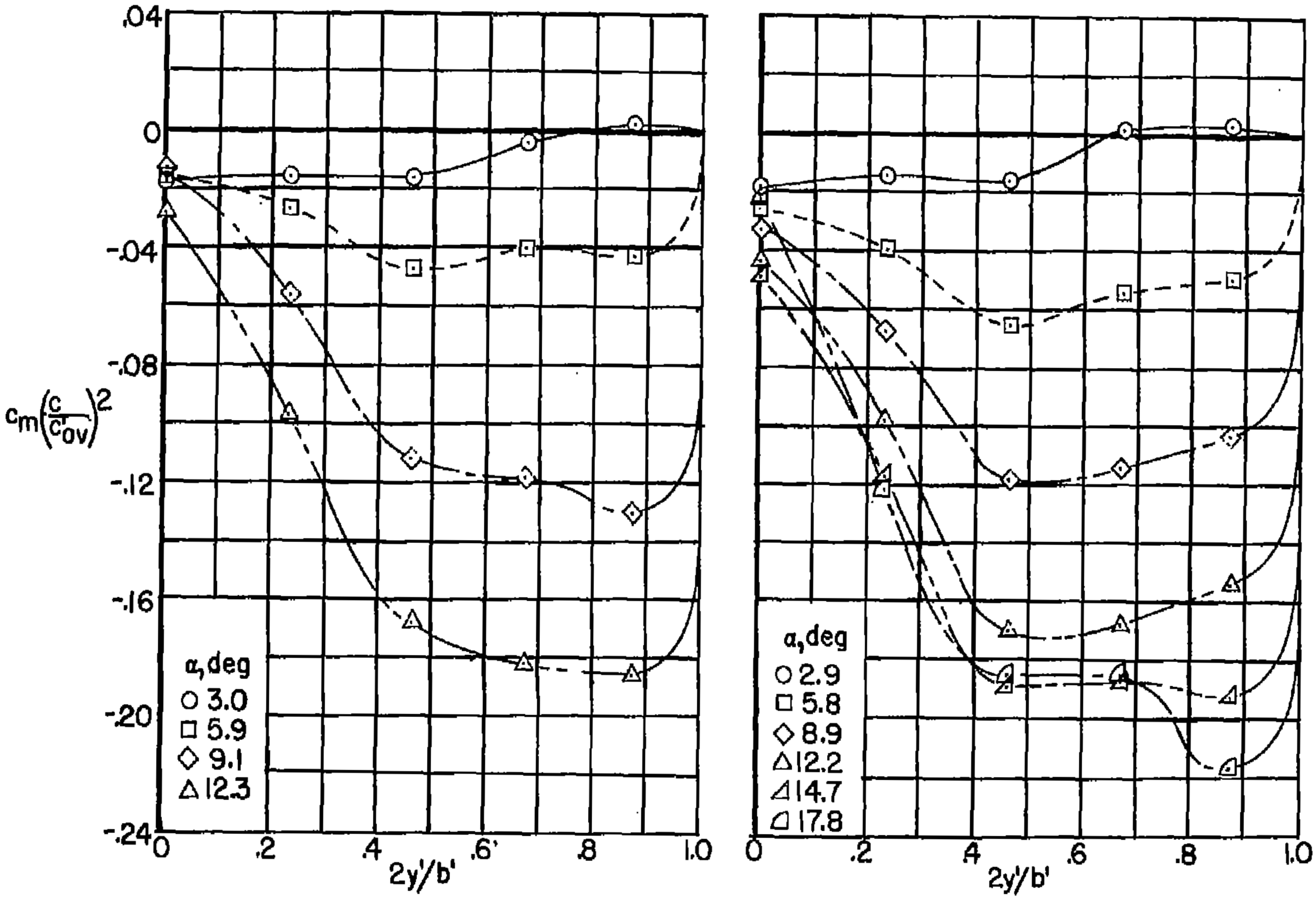


(c) M ≈ 0.88.

(d) M ≈ 0.92.

Figure 18.- Continued.

[redacted]

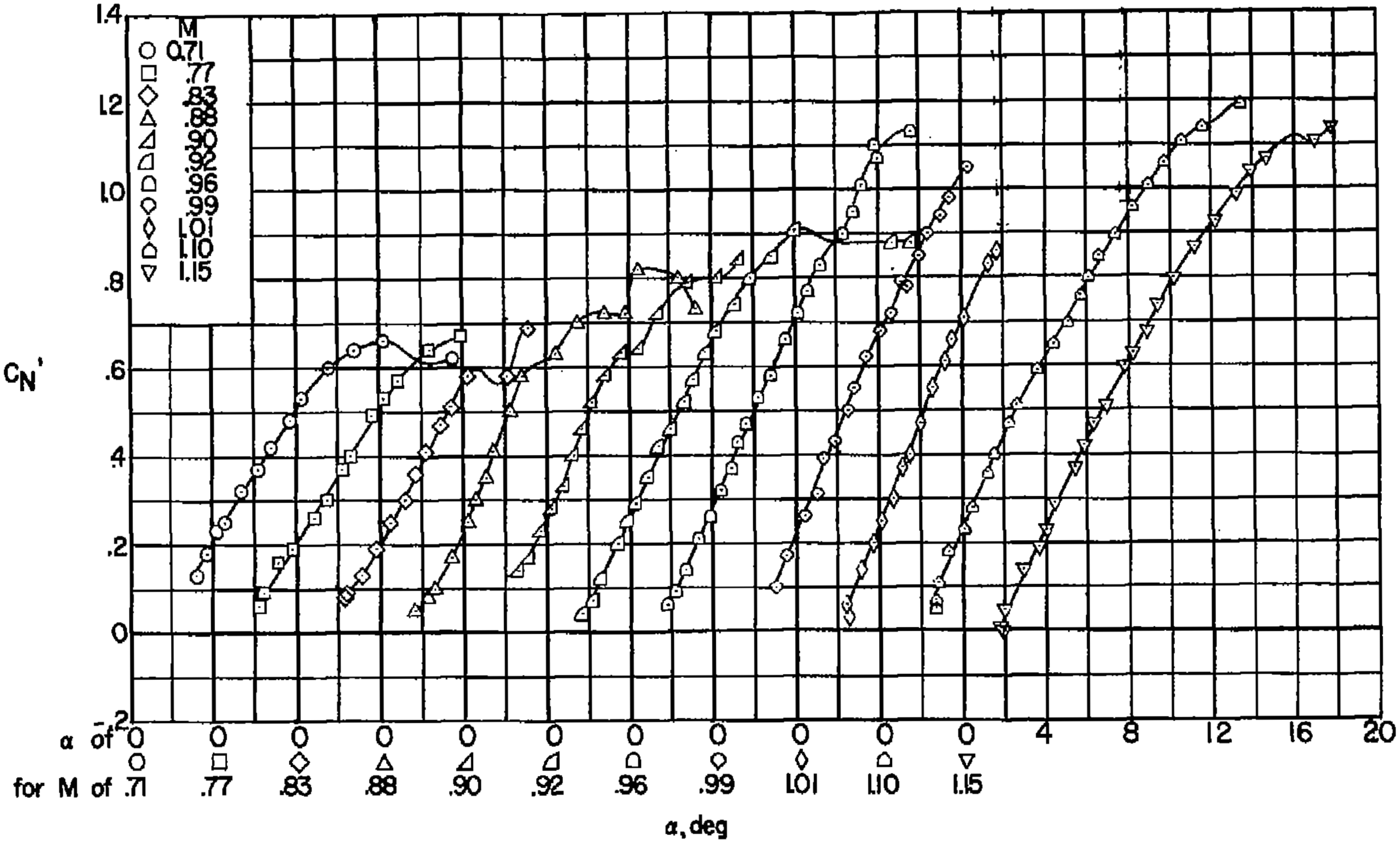


(e) M ≈ 0.99.

(f) M ≈ 1.15.

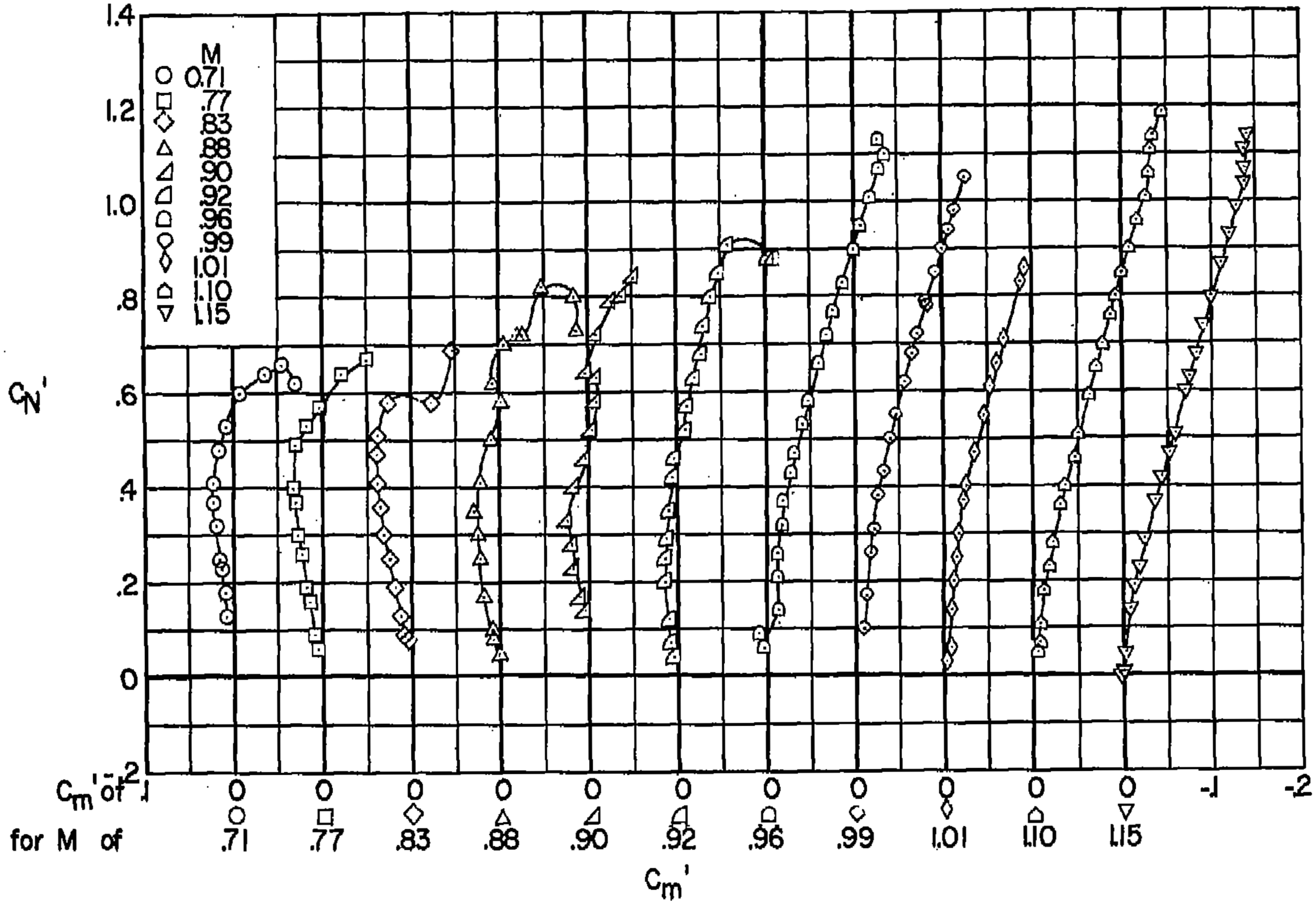
Figure 18.- Concluded.

[redacted]



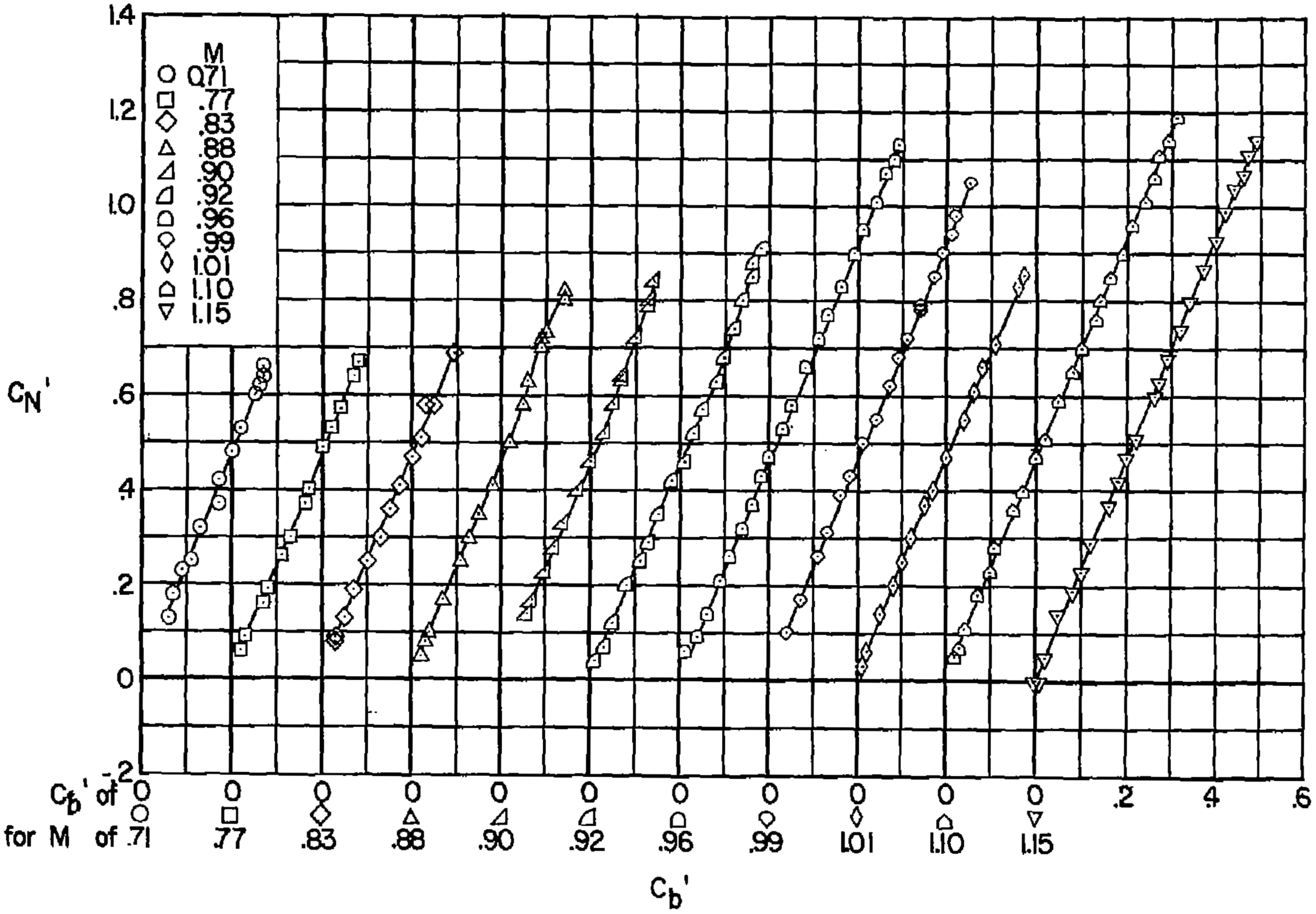
(a) Normal-force coefficient.

Figure 19.- Wing-panel aerodynamic characteristics for the X-3 airplane.



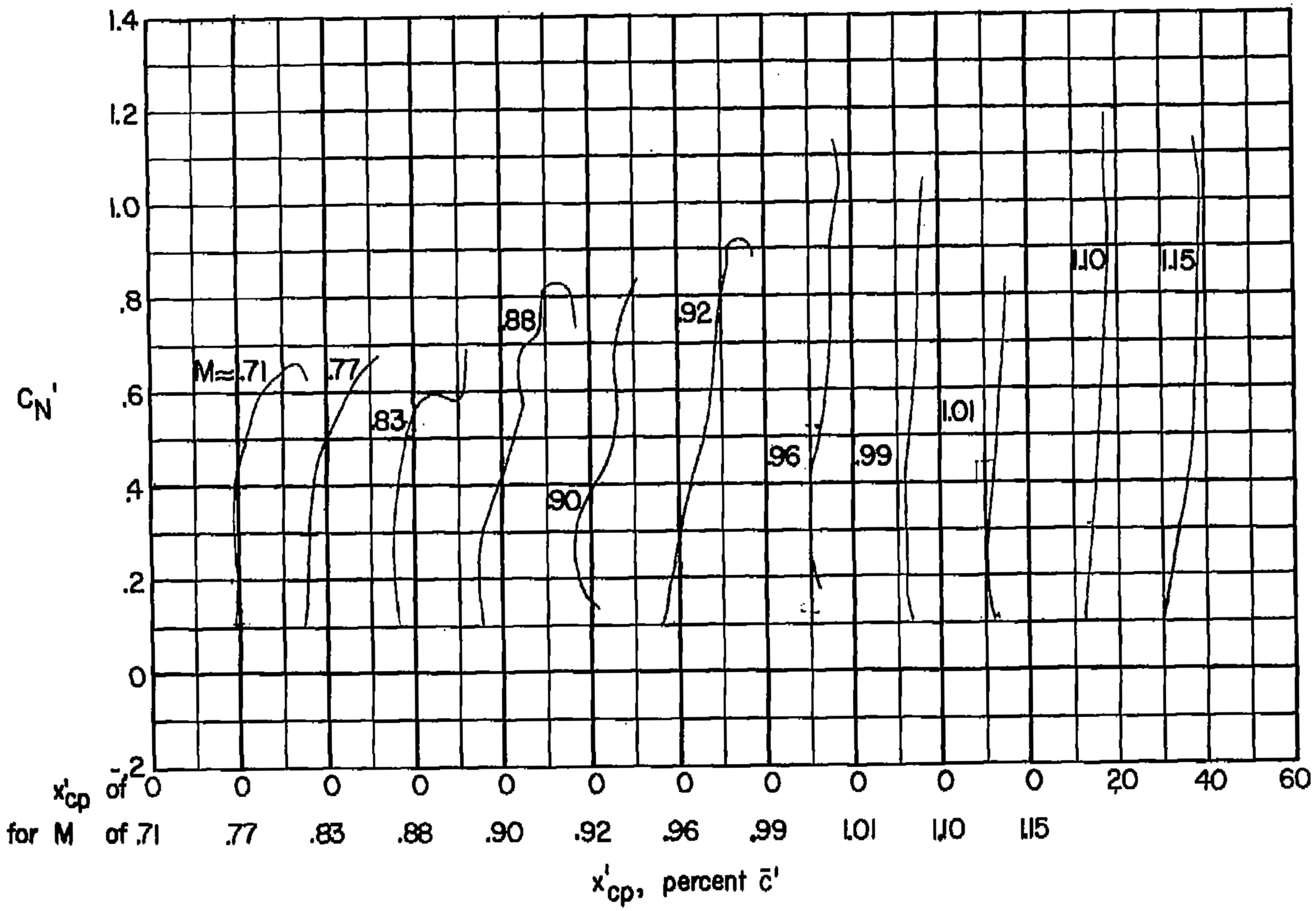
(b) Pitching-moment coefficient.

Figure 19.- Continued.



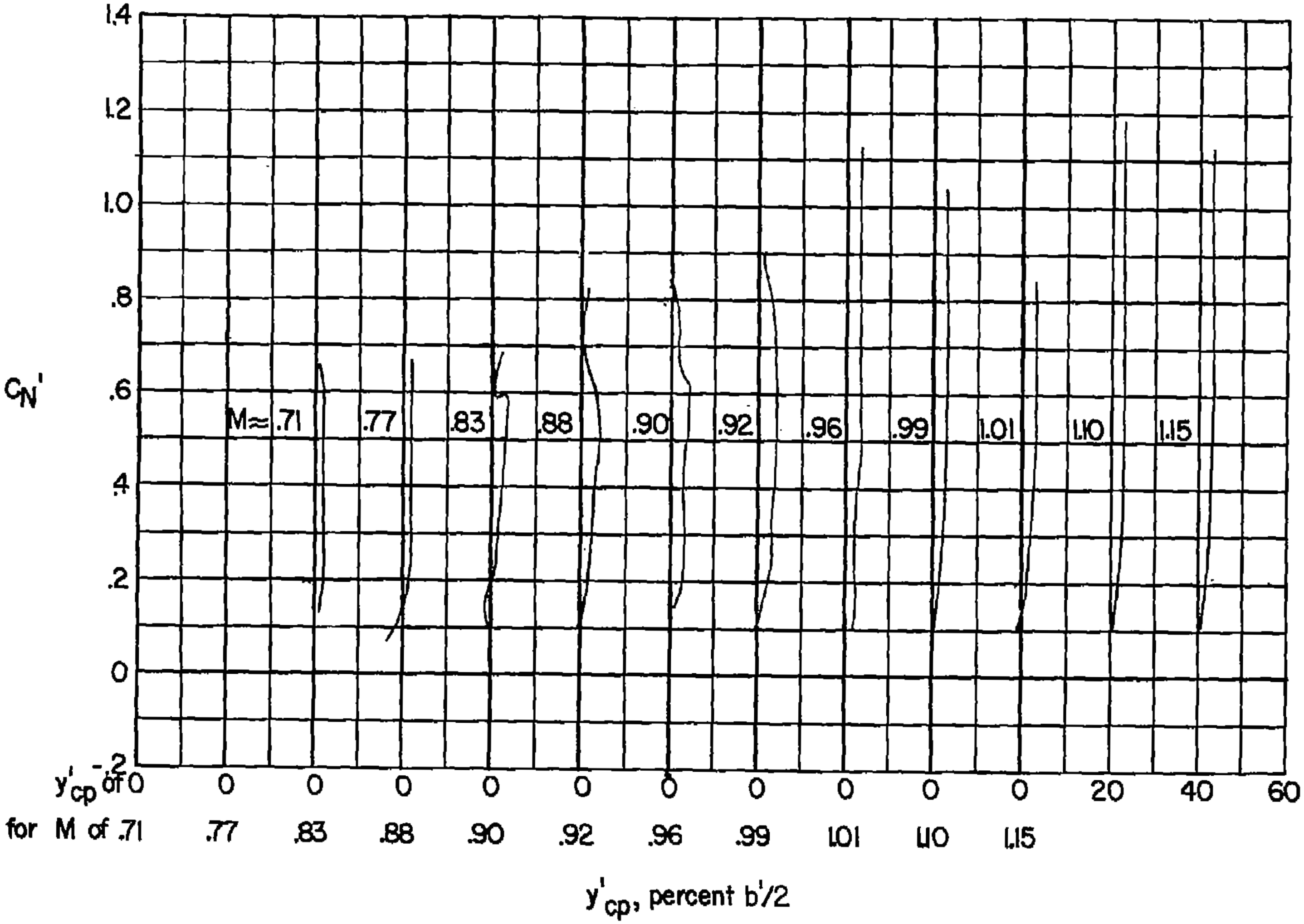
(c) Bending-moment coefficient.

Figure 19.- Continued.



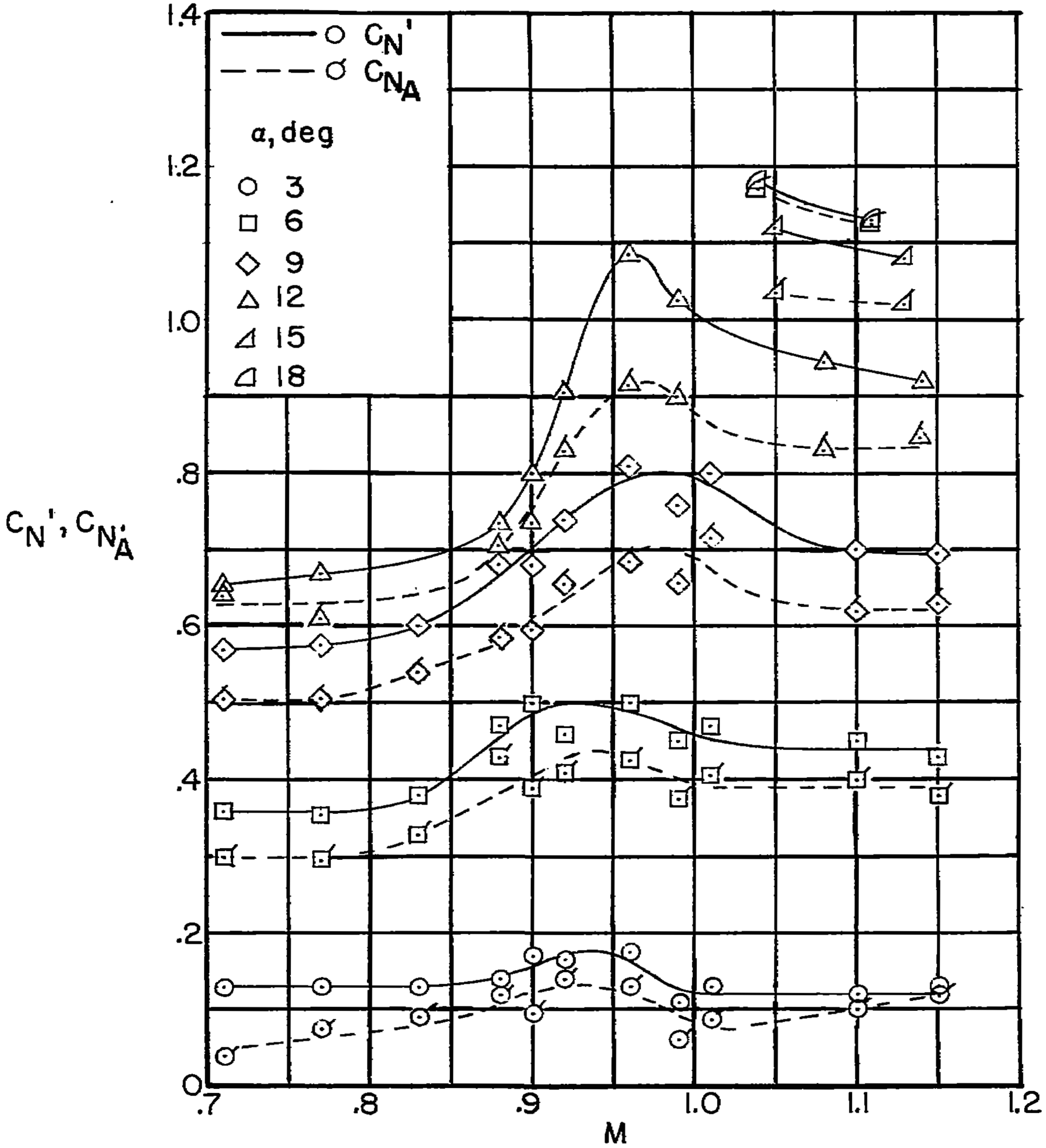
(d) Chordwise location of center of pressure.

Figure 19.- Continued.



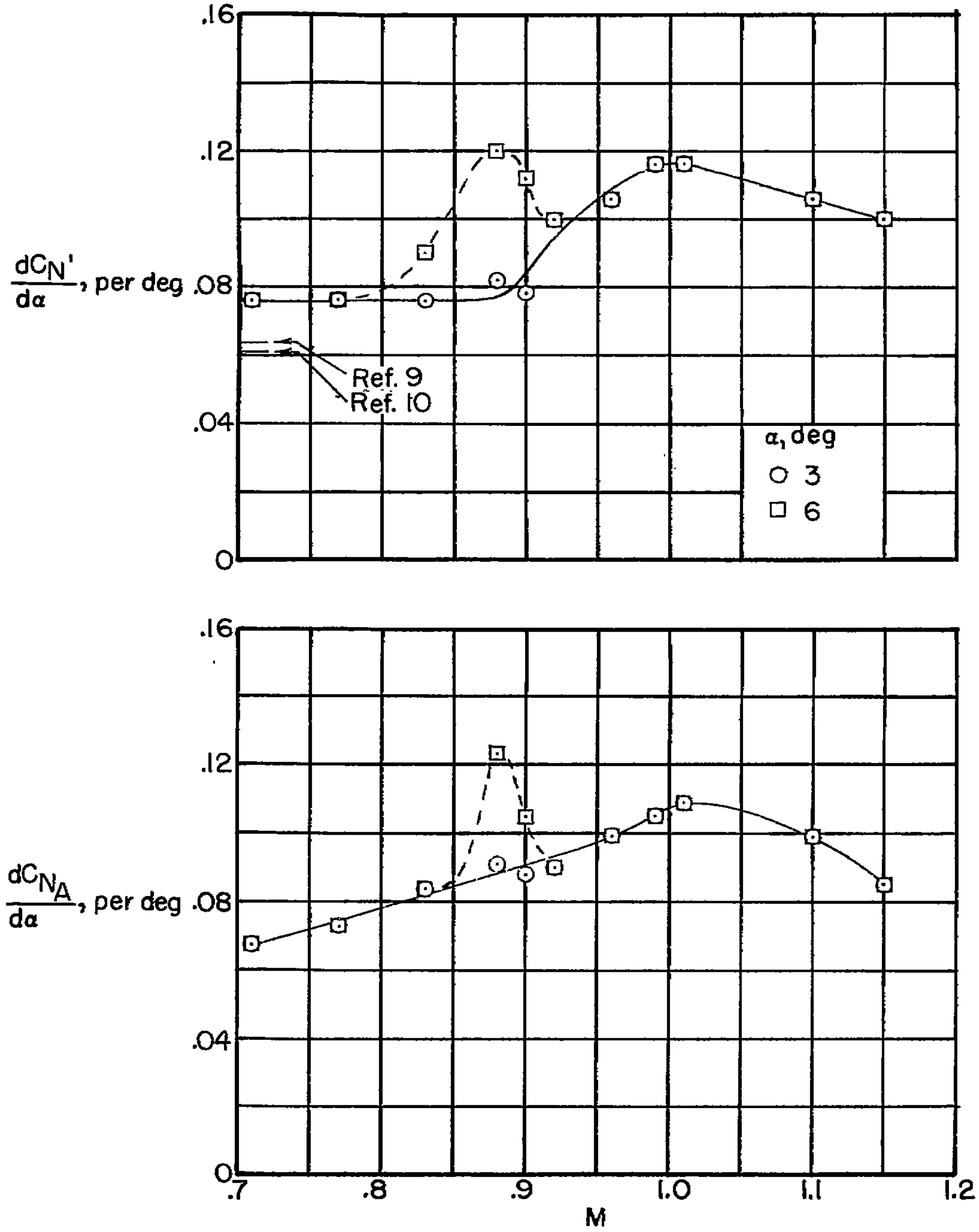
(e) Spanwise location of center of pressure.

Figure 19.- Concluded.



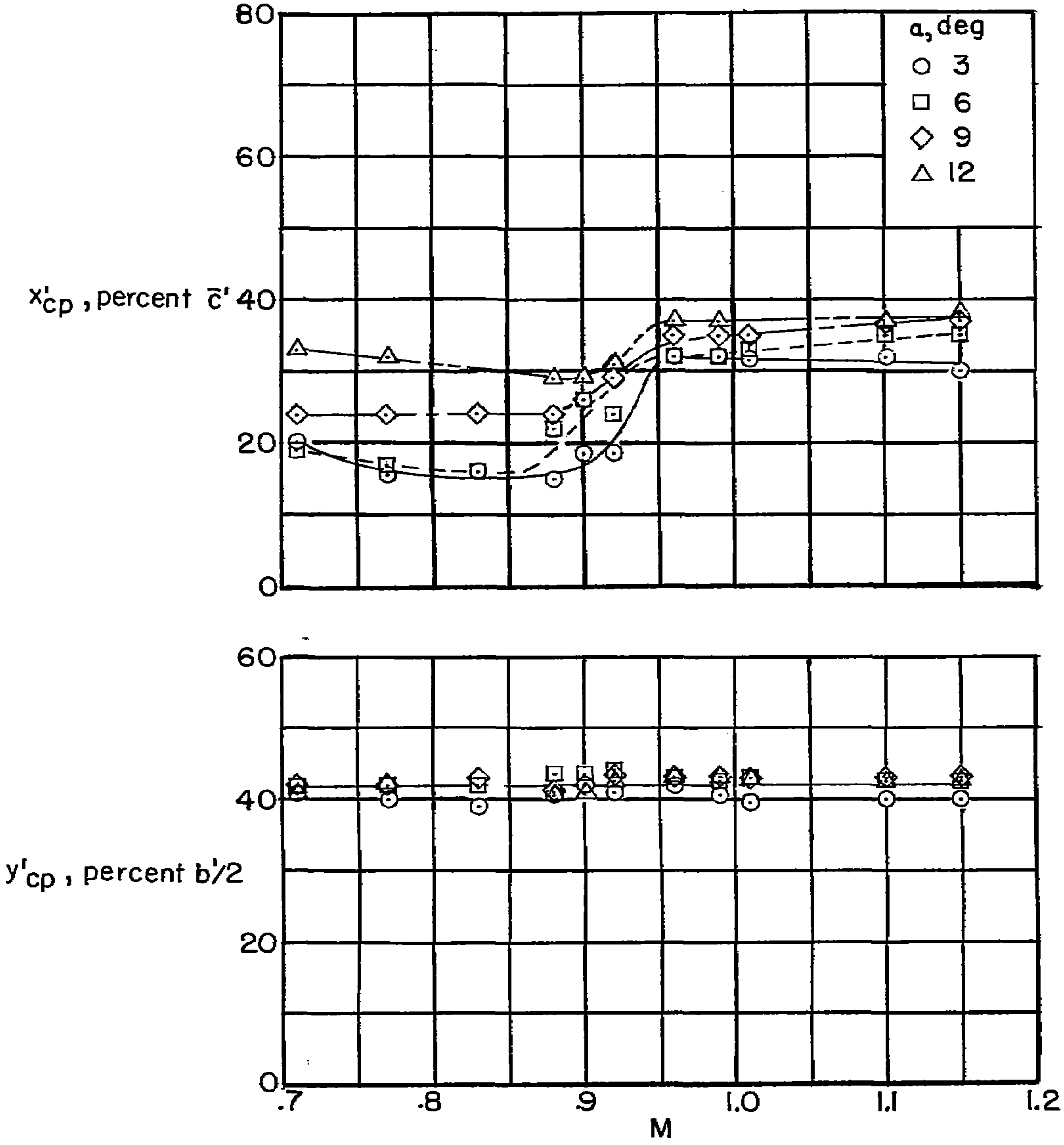
(a) Normal-force coefficient.

Figure 20.- Variation with Mach number of the aerodynamic characteristics of the wing of the X-3 airplane at several angles of attack including a comparison with the airplane characteristics.



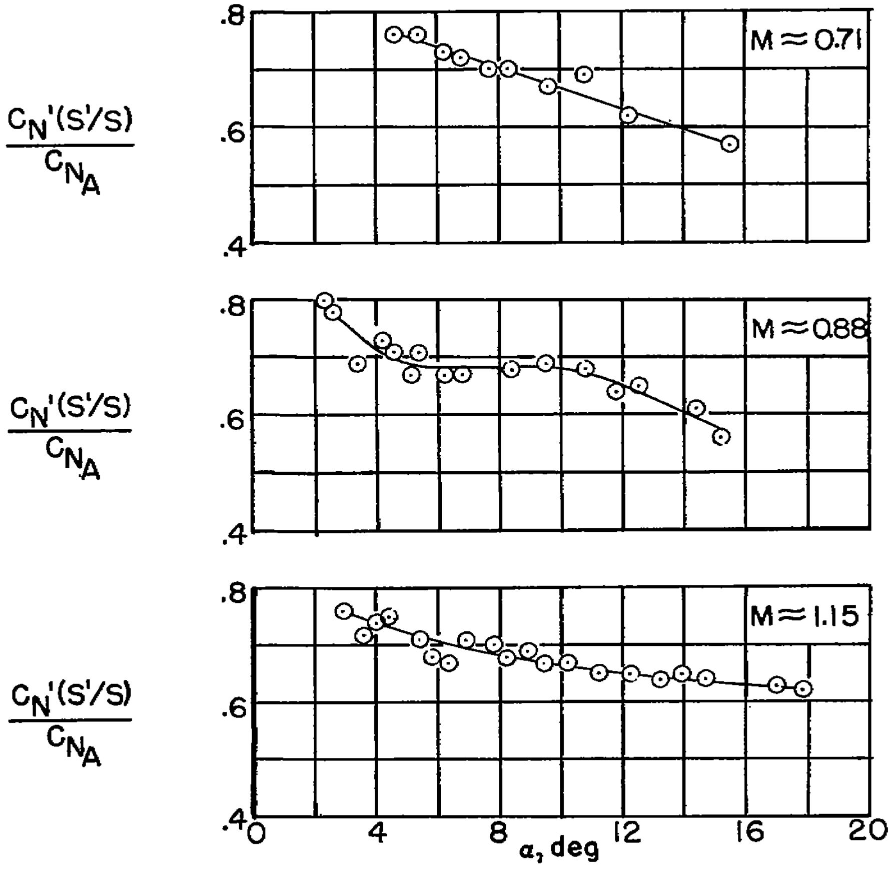
(b) Normal-force-curve slope.

Figure 20.- Continued.

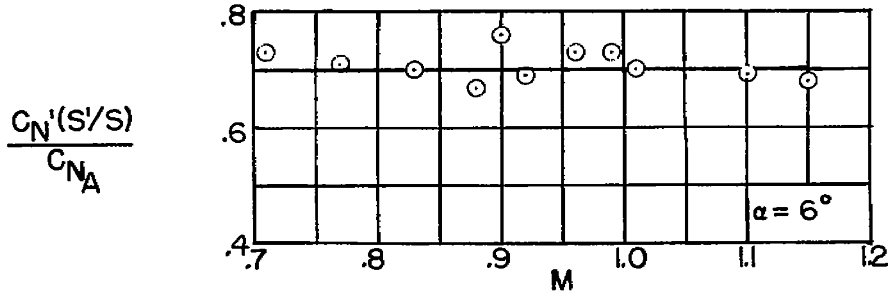


(c) Center of pressure.

Figure 20.- Concluded.

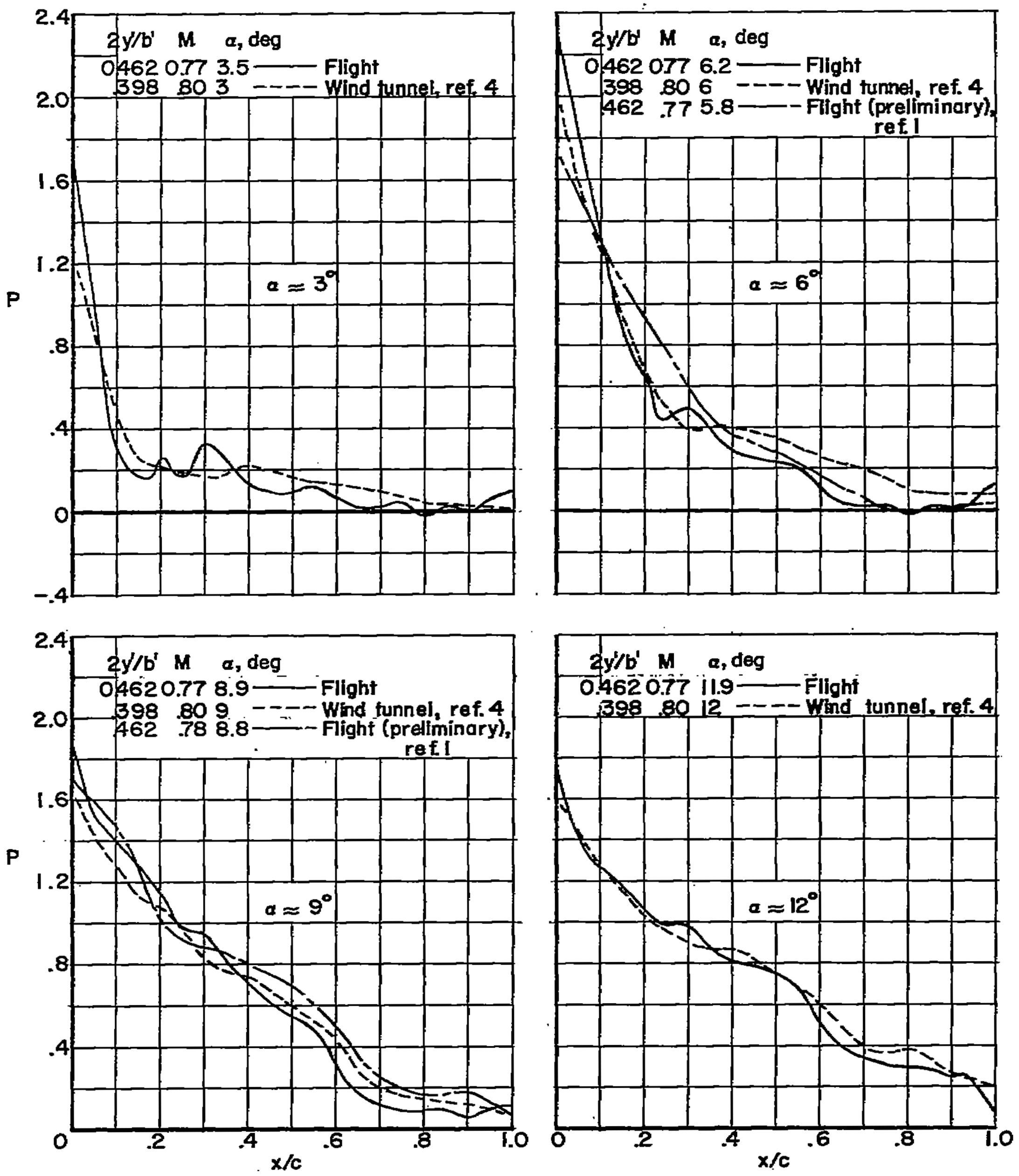


(a) Variation with angle of attack.



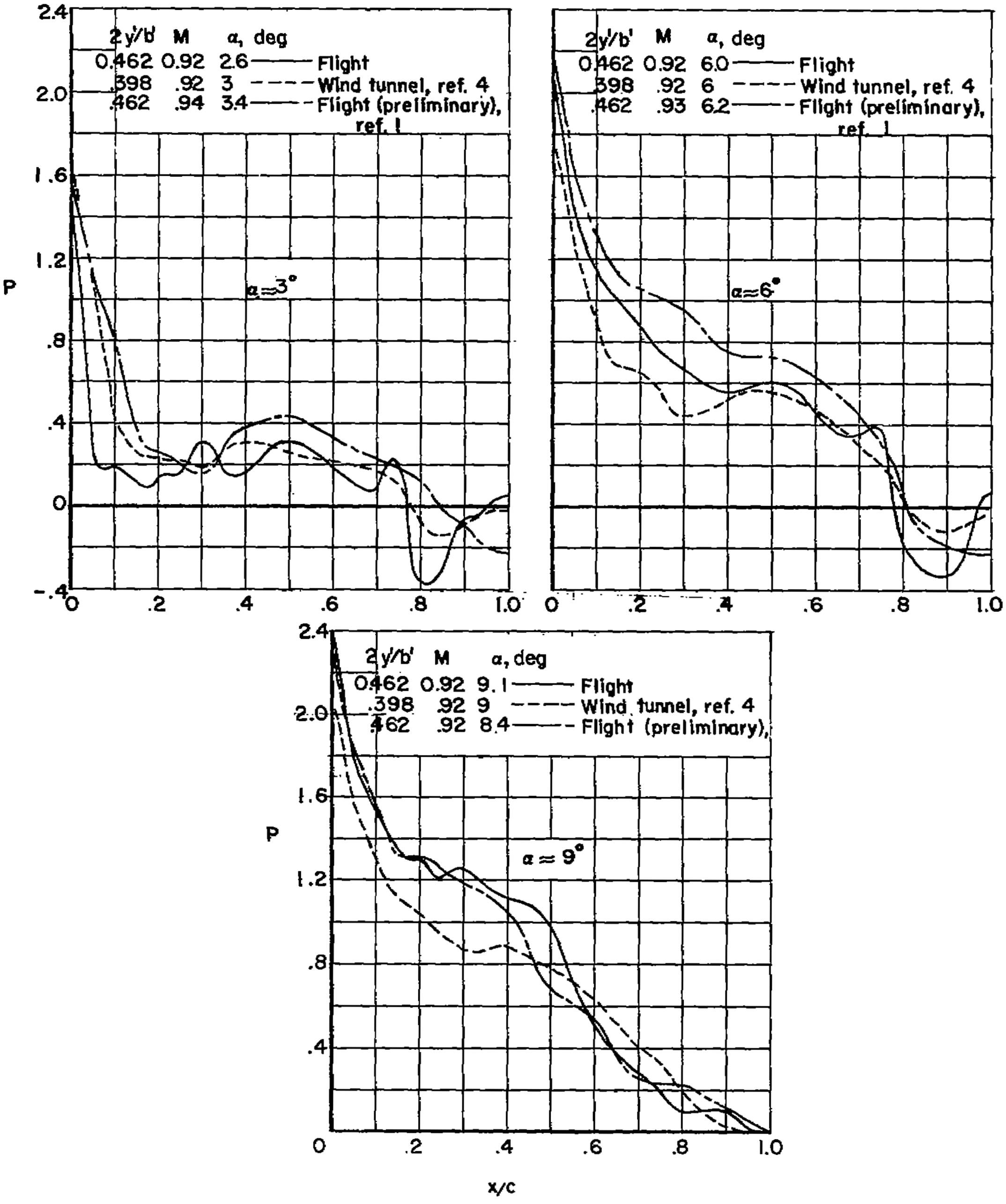
(b) Variation with Mach number.

Figure 21.- Variation with angle of attack and Mach number of the contribution of the wing of the X-3 airplane to the total normal force.



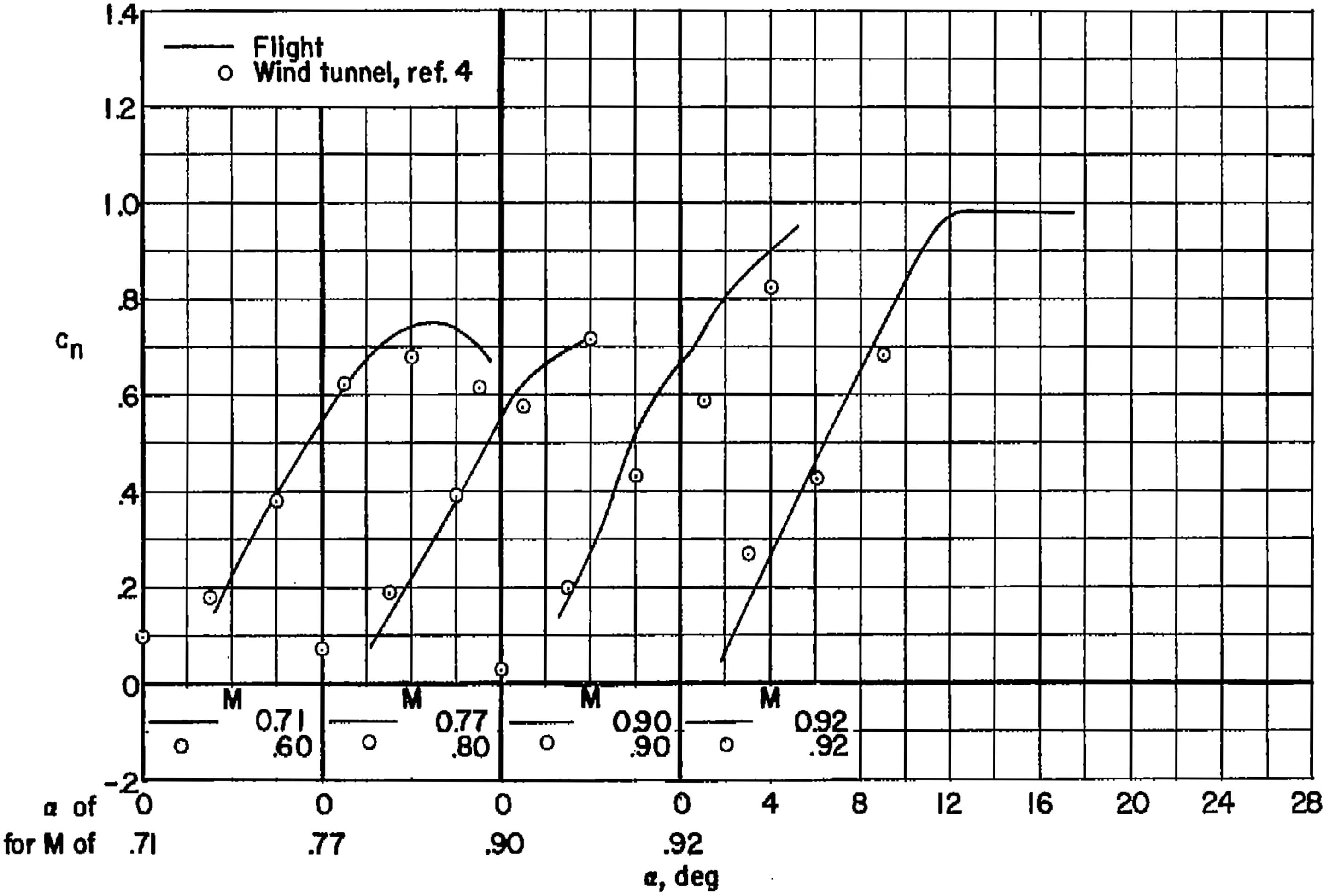
(a) M ≈ 0.77.

Figure 22.- Comparison of flight data to wind-tunnel results of reference 4 for the X-3 airplane. Chordwise load distributions for station near the midsemispan.



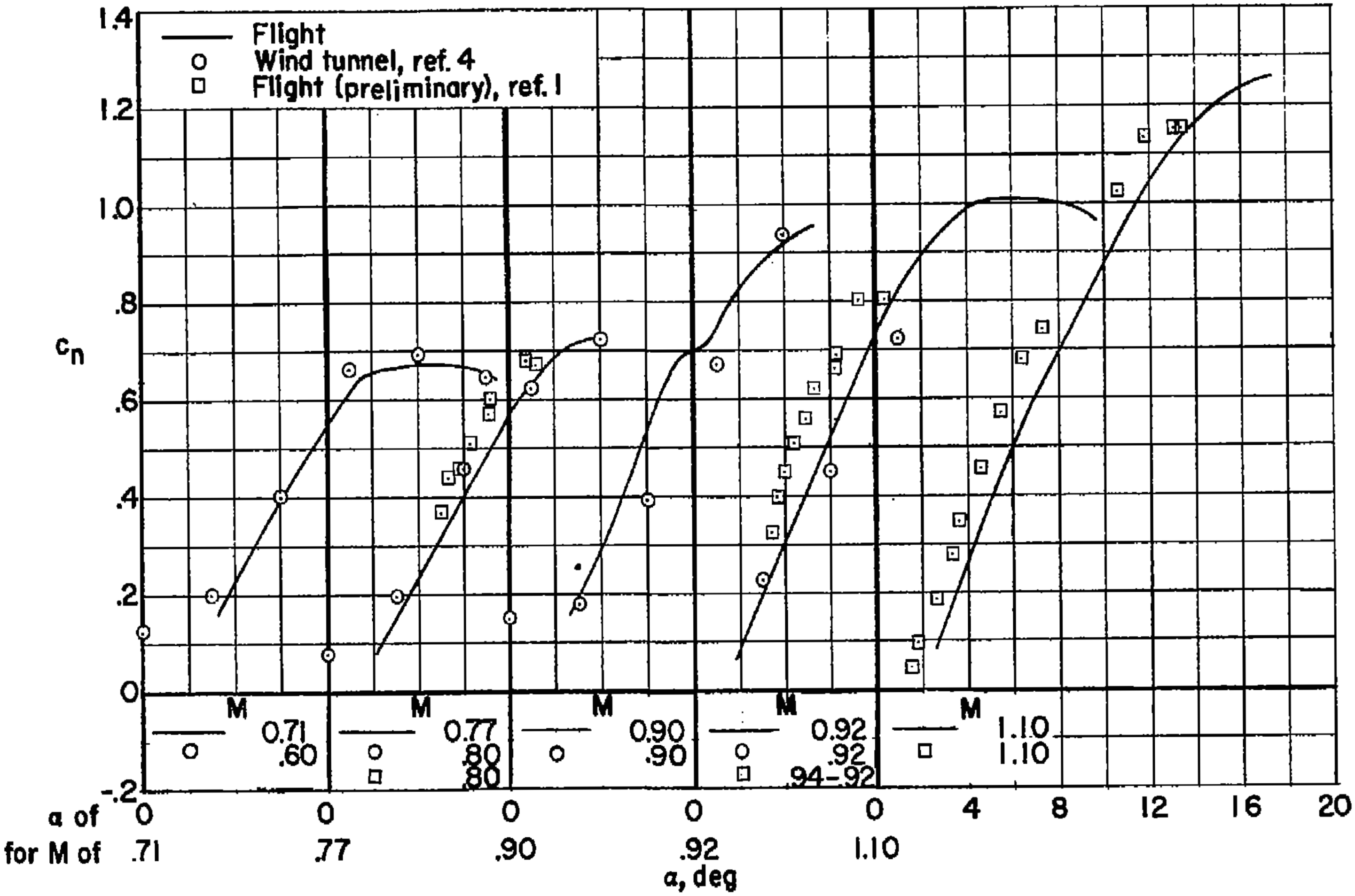
(b) M ≈ 0.92.

Figure 22.- Concluded.



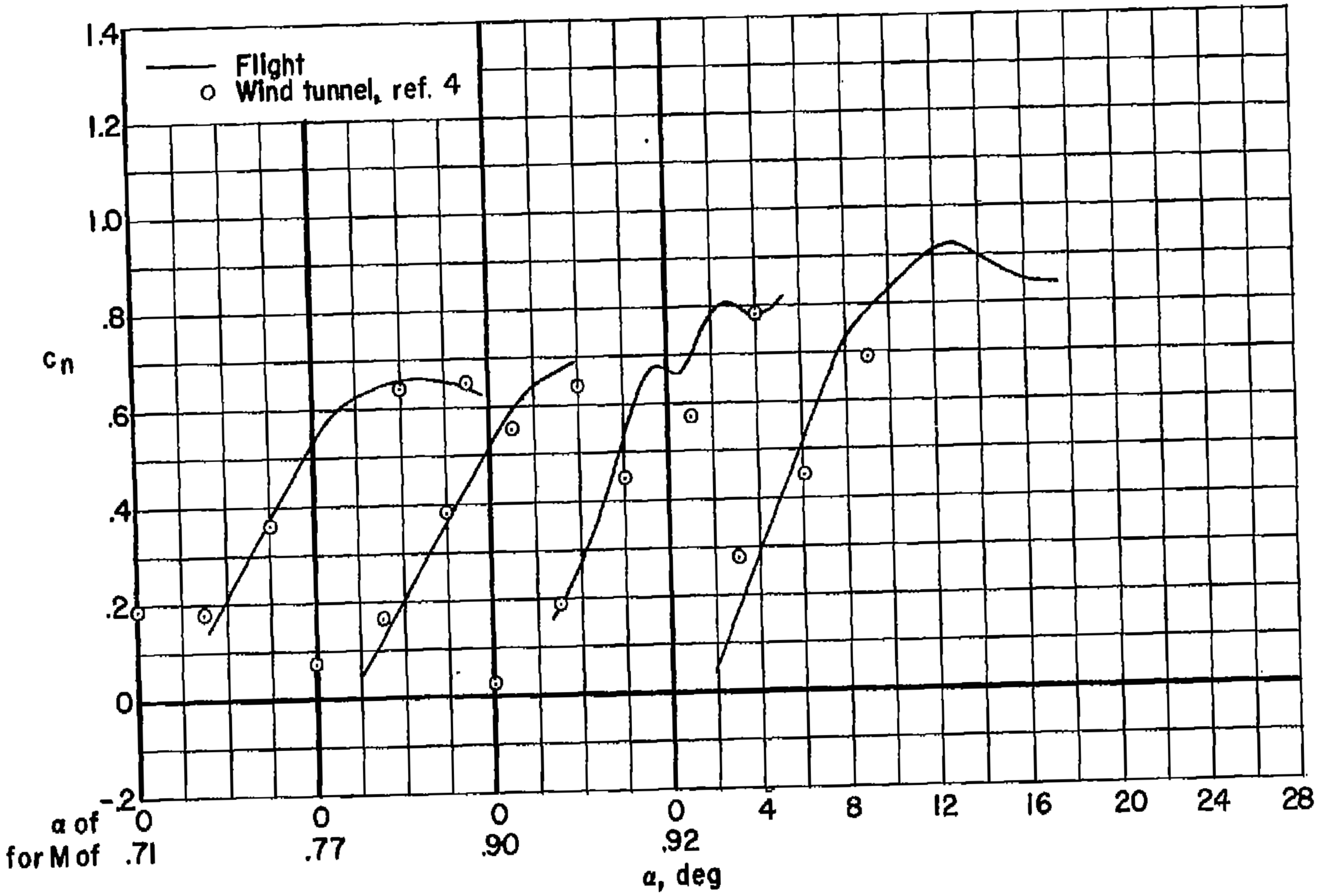
(a) Station 0.231b'/2 (flight); station 0.184b'/2 (wind tunnel, ref. 4).

Figure 23.- Comparison of flight data with wind-tunnel results of reference 4 for the X-3 airplane. Section normal-force coefficient.



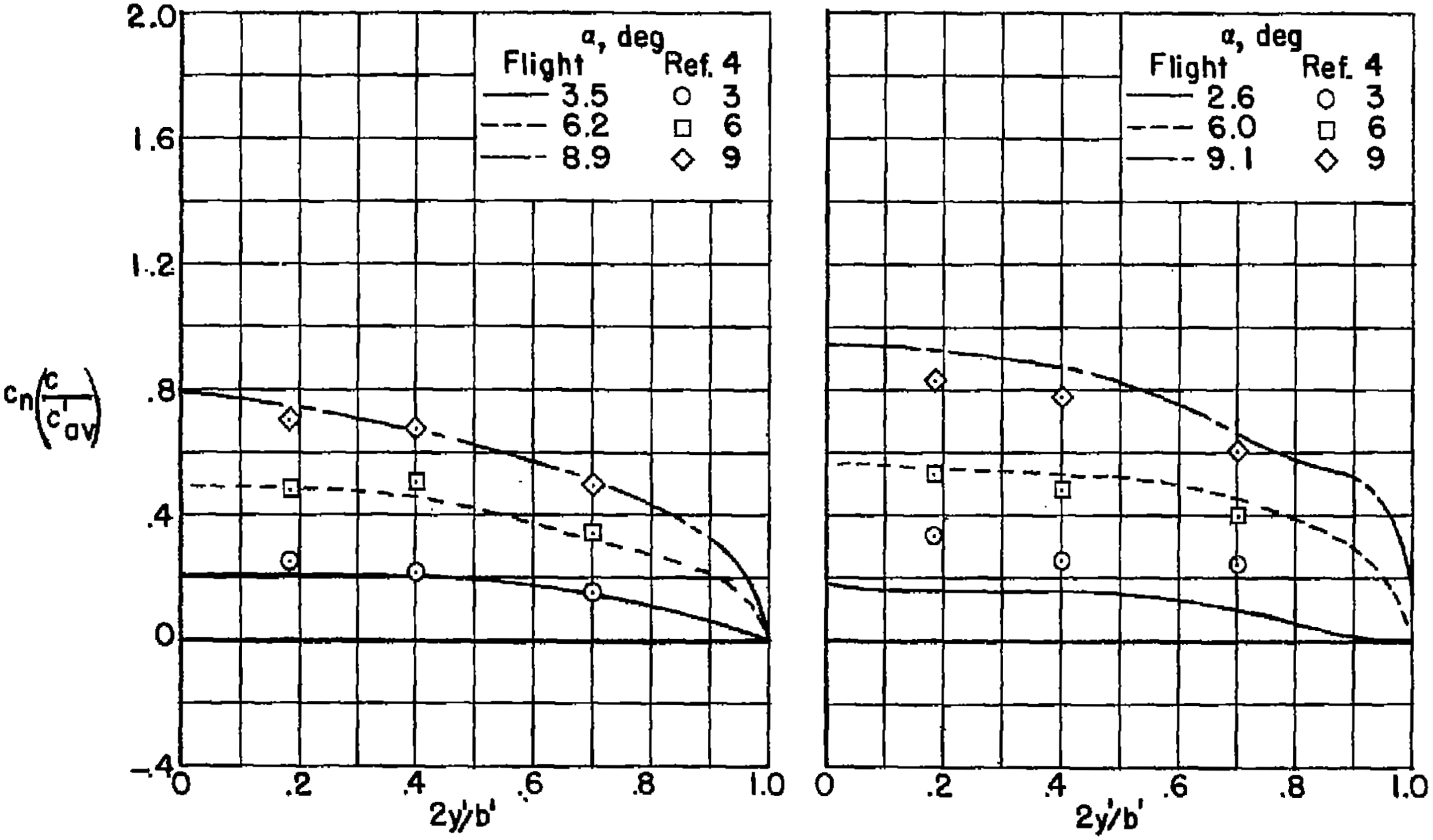
(b) Station 0.462b'/2 (flight); station 0.398b'/2 (wind tunnel, ref. 4).

Figure 23.- Continued.



(c) Station 0.673b'/2 (flight); station 0.699b'/2 (wind tunnel, ref. 4).

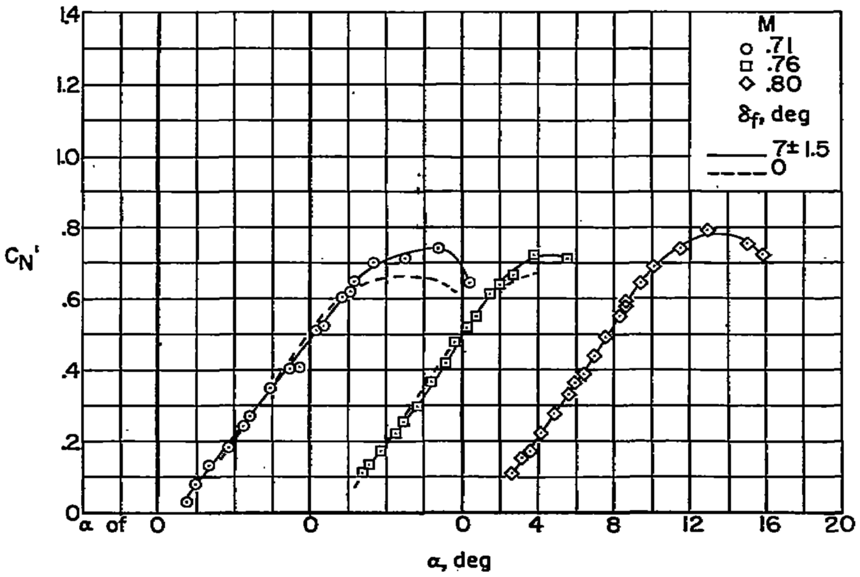
Figure 23.- Concluded.



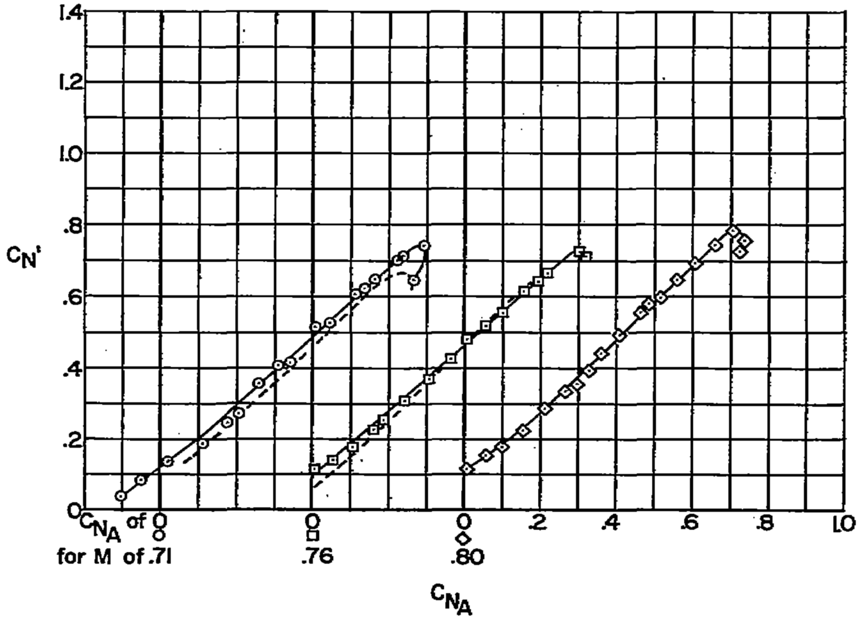
(a) M ≈ 0.77 (flight); M = 0.80 (wind tunnel, ref. 4).

(b) M ≈ 0.92 (flight); M = 0.92 (wind tunnel, ref. 4).

Figure 24.- Comparison of flight data with wind-tunnel results of reference 4 for the X-3 airplane. Spanwise load distribution.

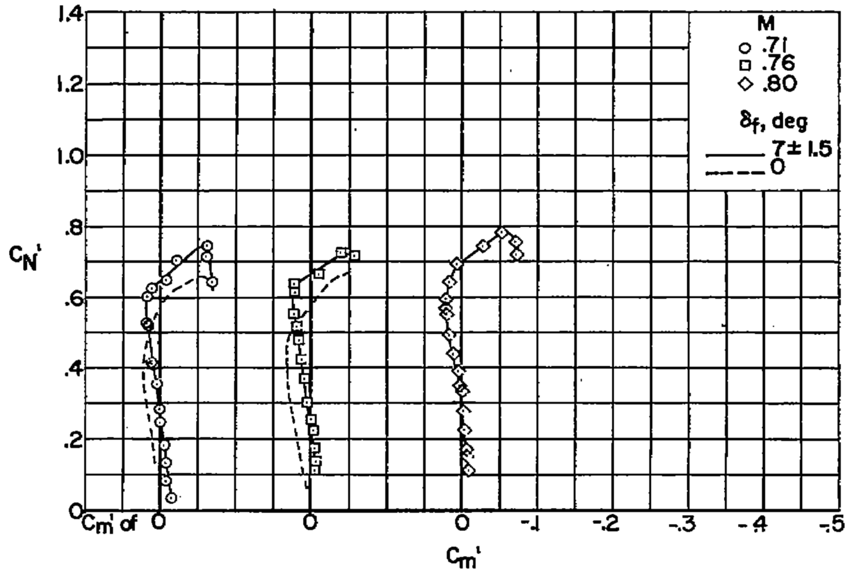


(a) Wing-panel normal-force coefficient.

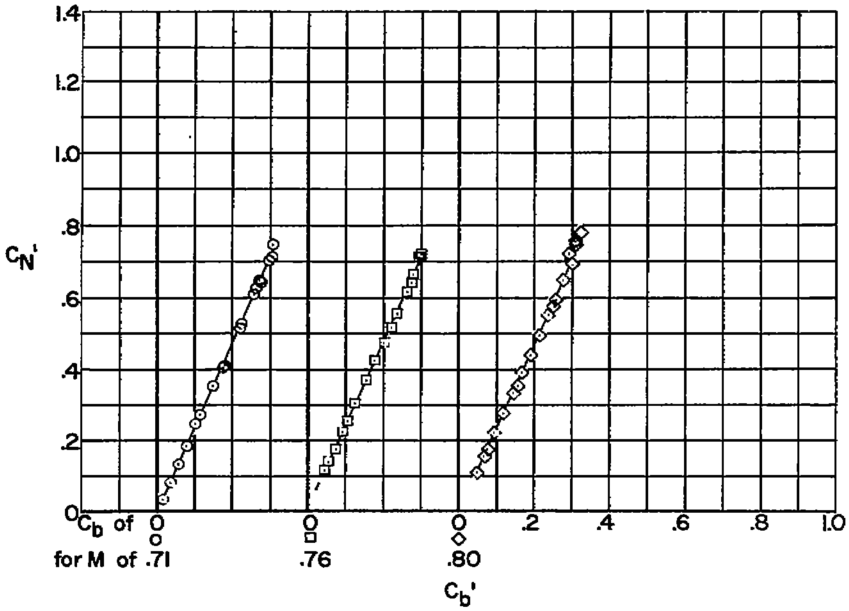


(b) Airplane normal-force coefficient.

Figure 25.- Wing-panel aerodynamic characteristics for the wing of the X-3 airplane. $\delta_f = 7^\circ \pm 1.5^\circ$.

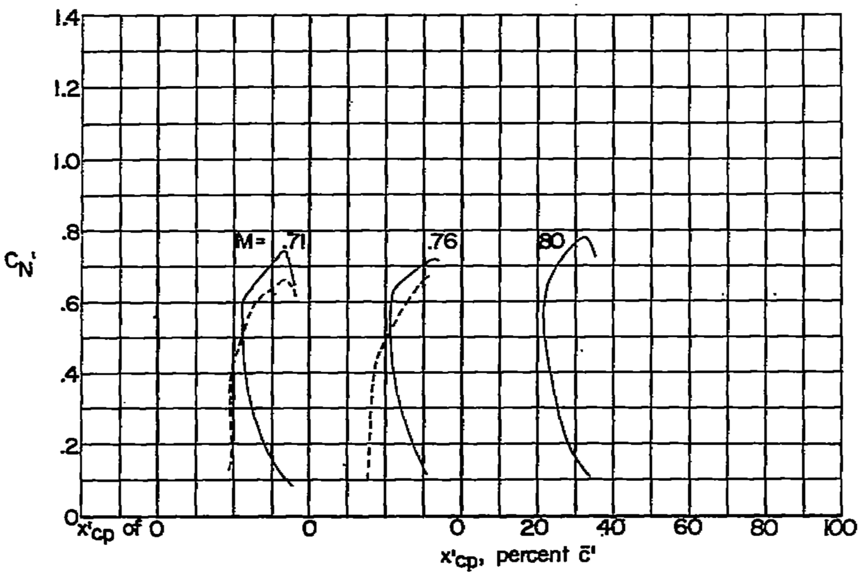


(c) Pitching-moment coefficient.

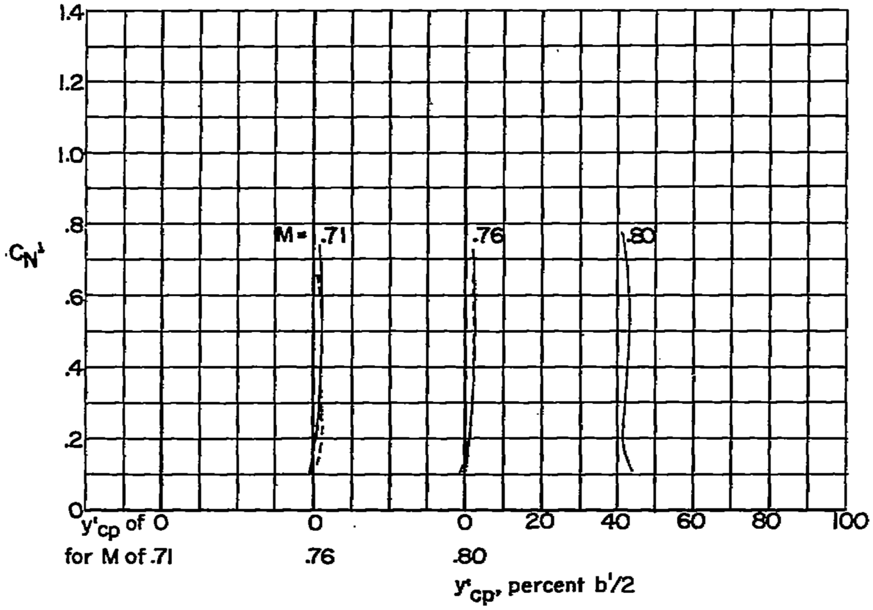


(d) Bending-moment coefficient.

Figure 25.- Continued.



(e) Chordwise location of center of pressure.



(f) Spanwise location of center of pressure.

Figure 25.- Concluded.